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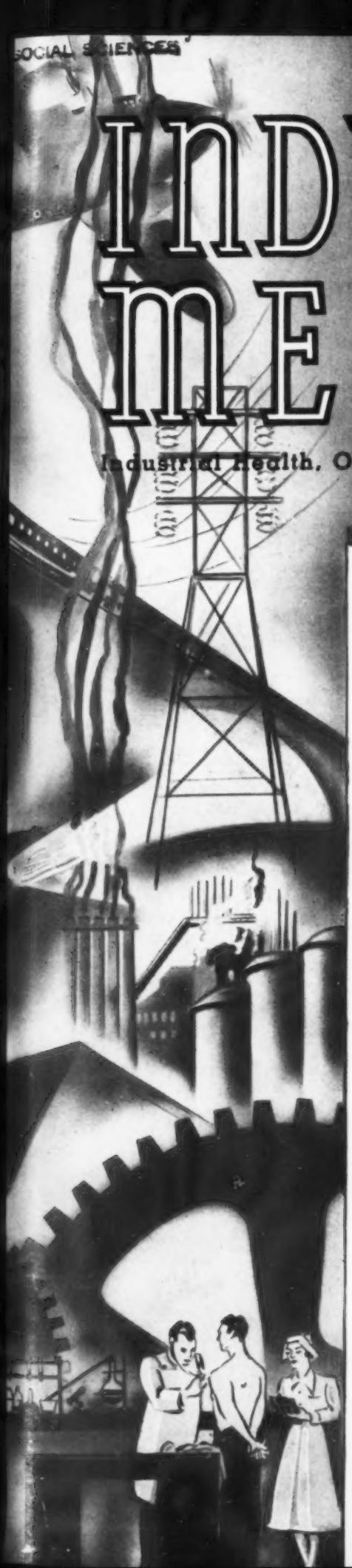
Industrial Health, Occupational Medicine and Traumatic Surgery



January, 1947

Vaccination Against Epidemic Influenza B
— Protective Effect in an Industrial Plant —

Refrigeration
— In Trauma of the Extremities —

Dental Relations
— In Industrial Health Services —

Borderline Cardiovascular Abnormalities
— Evaluation —

Illness, Absenteeism, Lateness, Separation
— In a Mail Order Firm —

Hydrofluoric Acid Burn
— Case Report —

Industrial Health Congress
— Abstracts of Proceedings —

Observations on Progress
— A Tardy Program —

Personnel Practices in Fifteen Countries
— Letters of Comment, No. 3 —

Volume 16 Number 1

R v. 16 Jan - June 1947

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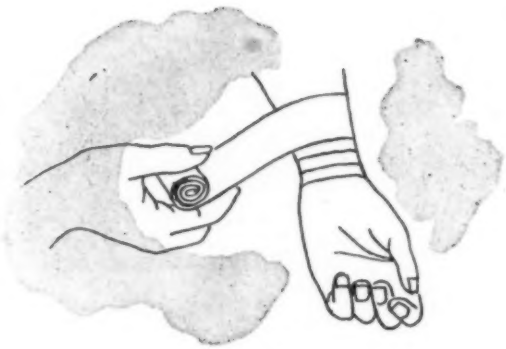

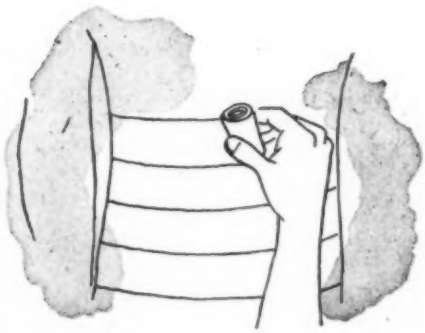

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MEDICAL Departments in Small Plants: Layout, Equipment and Cost,
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OCCUPATIONAL Lead Absorption: A Study of Cases Observed Among Jamaica Negroes,
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CASES of Chronic CS_2 Poisoning in the Viscose Industry,
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TROPICAL Diseases in Industry,
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PREVENTIVE Medicine in Engineering Education,
by *George W. Reed*

LOW BACK PAIN: A Different Cause and Treatment,
by *Laurence Jones, M.D.*

DR. CAREY P. McCORD'S "original 'whatdunit' of occupational diseases" entitled "A Blind Hog's Acorns" is No. 9 on the list of the year's "100 Books for the Doctor." The reviewer's comment: ". . . . most interesting book I have read in a long time." Apropos of the title—which Herb Graffis, columnist in *Chicago Times*, characterizes as the worst title ever hung on a good book—it has almost a classical basis. In Act I, Scene 2, of Schiller's "The Robbers," Schweitzer says: "Spiegeberg, thou art a great man—or else a blind hog has by chance found an acorn!" . . . . THE REGIMENTERS die hard—*Medical Economics* observes: "Washington dopesters scoff at a U.P. report that the 1947 Wagner-Murray-Dingell Bill will be 'delayed' because of 130 changes made necessary by testimony on S. 1606. Isidore S. Falk and the Social Security Administration, they say, have already whipped up a new measure and all it needs is polishing". . . . REGARDING the paragraph of the editorial which mentions propaganda, there is the feeling that some industrial hygienists assume that the medical aspects of industrial health are within the province of their work and are giving advice and counsel in medical matters, particularly with reference to an over-all program of medical care. This is particularly true of the industrial hygiene that is not connected directly with industry. But it is *aiming* at industry, in large communities where the facilities of private medical practice are readily available. Is this a further example of the influence on official agencies of the sponsorship and advocacy of the late and unlamented Wagner-Murray-Dingell bill? With the resurgence of the American spirit evident since November 5, it is expected that industry will have much to say about "full care" at its expense, and will assert the limitations of its own situation.

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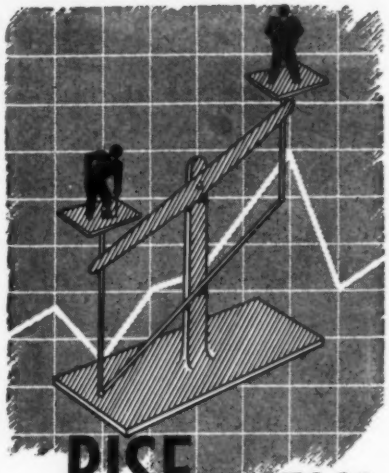

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*Spackman, E. W. et al: Am. J. M. Sc., 202:68, 1941.

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DR. PILGRIM

TO THE Stanford-California Football Party at the Chicago Yacht Club and here meeting many California friends, and after the buffet supper much singing of college songs, for which Pilgrim played the piano, it seeming indeed a very fine custom; and sitting with the LELANDS and taking them home afterward. . . . AND again lecturing to the industrial nurses and finding much of interest to be discussed and many questions and comments of importance. . . .AND at lunch with an industrial executive, considering cost figures of medical and health services, with study of these later, and more discussions in the attempt to interpret them. . . . AND at luncheon with a group of engineers and discussing mutual problems with respect to engineering services and matters relative to adequate organization and progress. . . . AND then to an industrial plant for the sampling of air and meeting with the officials for the discussion of problems, it developing that many improvements have been made for the control of atmospheric pollution, the same being evidence that management *is* interested and *does* produce results. . . . AND all day at the annual mid-winter meeting of the CENTRAL STATES SOCIETY OF INDUSTRIAL MEDICINE AND SURGERY, and sitting at lunch with many of the old timers and some of the new ones, including DRS. ROBERT GRAHAM, WILLEMS, WELLMERLING, FRANK HAMMOND, MELVIN HOLE, ORRIS CONLEY, HARTMAN, MILLER, GEBHARD, and many others; and a very fine clinical program put on at St. Luke's Hospital with a good session at the Palmer House in the afternoon and evening. . . . AND then to Cleveland to meet FRED MALLETTE and spending the day with him in the research laboratories of Firestone Tire & Rubber Co., as well as in two plants which have industrial hygiene problems, there being much discussion wherefrom it was apparent that simplification in a record system is highly to be desired; and in the evening to talk to the Northeast Ohio Section of the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION, at which the audience was small but nevertheless quite responsive, on the subject "Some Recent Problems in Industrial Medicine and Hygiene". . . . AND attending the testimonial luncheon of the National Physicians Committee at the Drake, given for DR. HARRISON H. SHOULDERS, President of the A.M.A., at which DR. EDWARD CARY presided well, and seeing many friends in the profession, including DRS. ROGER LEE, CHARLES ROBERTS, the HARRY MOCKS, SR. and JR., EDWARD HOLMBLAD, ROBERT GRAHAM, HAROLD LULL, MORRIS FISHBEIN, CARL PETERSON, ANTHONY LANZA, and many others; and sitting with DRS. W. A. COVENTRY, of Duluth, J. M. HAYES of Minneapolis, JAMES R. McVAY of Kansas City, ERLING W. HANSON of Minneapolis, F. J. SAWYER of St. Paul, JAMES REEDER of Sioux City, FRED MILLER, CHARLES E. PITTE and FRANK P. HAMMOND of Chicago, and appreciating the thoughtfulness of the committee in placing at each plate a copy of "Animal Farm," by George Orwell. . . . AND amazed at the peculiarities of human reactions upon hearing that 600 miners struck in an

—*Continued on page 44.*

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THE object of this Association shall be to foster the study and discussion of the problems peculiar to the practice of industrial medicine and surgery; to develop methods adapted to the conservation of health among workers in the industries; to promote a more general understanding of the purposes and results of the medical care of employees, and to unite into one organization members of the medical profession specializing in industrial medicine and surgery for their mutual advancement in the practice of their profession.

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PERSONAL

DR. H. GLENN GARDINER became Medical Director of Sears, Roebuck & Company, Chicago Mail Order Division, on September 4, 1946. DR. GARDINER was formerly Medical Director of Foote Bros. Gear & Machine Corporation, Chicago, and later associated with DR. N. K. FORSTER, at Hammond, Indiana. Plans are under way for the remodeling and modernization of the Sears-Roebuck department, which serves approximately 15,000 employees.

DR. RONALD F. BUCHAN, newly appointed Assistant Professor of Industrial Medicine at Yale, is to serve as Clinical Director of the Institute of Occupational Medicine recently established at that university. He assumed his new post on November 1. A graduate of the University of New Hampshire and of McGill University, where he received his M.D., in 1942, DR. BUCHAN served with the Bureau of Industrial Hygiene in the Connecticut State Department of Health from 1943 until early in 1946, when he began private practice. He is the author of numerous technical papers, including "Medical Services in Connecticut Industry" and "Industrial Toxicology."

H. F. MOREY, M.D., has been appointed Medical Director of the Armstrong Cork Company, Lancaster, Pennsylvania. DR. MOREY is a graduate of Syracuse University, where he was active in university athletics and served as president of the Phi Chi Medical Fraternity. He received his M.D. at the Syracuse University College of Medicine in 1933. After internship at St. Joseph's Hospital in Syracuse, he practiced in industrial medicine before opening private offices in Mohawk, New York. He served in the U. S. Navy from February, 1943, until September, 1946, when he joined the medical staff of the Armstrong Cork Company. During his military service, he was in charge of the Preventive Medicine Program of the Portsmouth, New Hampshire, Navy Yard and later supervised the Industrial Health Program of the Third Naval District. His appointment was announced following the retirement on January 1, 1947, of DR. CHARLES P. STAHR, Physician of Armstrong plants in Lancaster. DR. STAHR'S retirement came after nearly 37 years of service with the company. In his new position, DR. MOREY will have charge of the oper-

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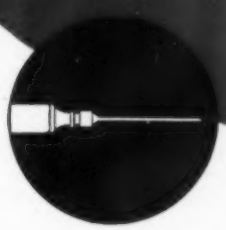
1. Poppe, J. K.: J.A.M.A. 129: 435 (Oct. 6) 1945.



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DR. CHRISTOPHER LEGGO, who was Medical Director, Clinton Engineer Works, Tennessee Eastman Corporation, Oak Ridge, during the war, has returned to the position as Medical Director, California & Hawaiian Sugar Refining Corporation at Crockett, California, which he left to enter the Service.

THE NEW YORK STATE SOCIETY OF INDUSTRIAL MEDICINE and the ASSOCIATION FOR THE ADVANCEMENT OF INDUSTRIAL MEDICINE AND SURGERY are about to combine under the first-mentioned name. Details later.

GENERAL

Strike vs. Examinations

A $750,000 damage suit against the United Steelworkers of America (C.I.O.) and its officers and against Philip Murray, president of the C.I.O., was filed today in the State Supreme Court by the New York Car Wheel Company. Robert A. Cooley, president of the company, said the suit was a result of a six-weeks' old work stoppage which began with a dispute over proposed physical examinations for 150 employees, members of U.S.W. Local 3694. . . . The company asserted at the time of the work stoppage that the examination program was "to protect the worker in finding a lighter, better-suited job for anyone with a disability." Molony countered that the program was "in all probability a preliminary step to the laying off of aged men," and that the company's employees "had to submit to an examination before they were hired and we fail to see any reason for examination for continued employment."

—*New York Sun*, December 6, 1946.

The Astoria Experiment

THROUGH the Office of Industrial Health, a cooperative wartime project of the New York State Department of Labor and the New York City Department of Health, the Division's Astoria war office carried out a valuable one-year experiment on in-plant medical care under controlled conditions. Seven plants in Long Island City in the processing, chemical, machinery, paint and printing industries were the base of operations. Twenty-one hundred employees were involved in the experiment in these varied plants, whose employment rolls showed from 70 to 700 workers. Objectives of the experiment were to reduce absenteeism and increase production through control of occupational hazards and non-occupational sickness among workers; to explore the matter of

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—*Industrial Bulletin*, October, 1946.

Carbon Tetrachloride Poisoning

THE Recognition and Treatment of Carbon Tetrachloride Poisoning" is the title of an information circular for physicians and nurses published in the November 30 issue of the *Journal of the American Medical Association*. Prepared by Safety Research Institute at the request of the manufacturers of carbon tetrachloride, the circular was reviewed by the Council on Industrial Health and other physicians and industrial hygienists preparatory to publication. The circular describes the symptoms of acute and chronic poisoning from vapor inhalation, skin irritation from repeated contact with the solvent, and poisoning by ingestion. Information with regard to allergic reactions and special susceptibility to vapor poisoning is included. Also included is a brief survey of the medical literature on the subject of systemic therapy for carbon tetrachloride poisoning. Of interest to industrial nurses is the discussion of first aid treatment for accidents such as contact of the solvent with the eyes or skin, exposure to solvent vapors, and ingestion of the liquid. Single copies of a reprint of the circular are available upon request from Safety Research Institute, at 420 Lexington Avenue, New York 17, or from the American Medical Association, 535 North Dearborn Street, Chicago 10.

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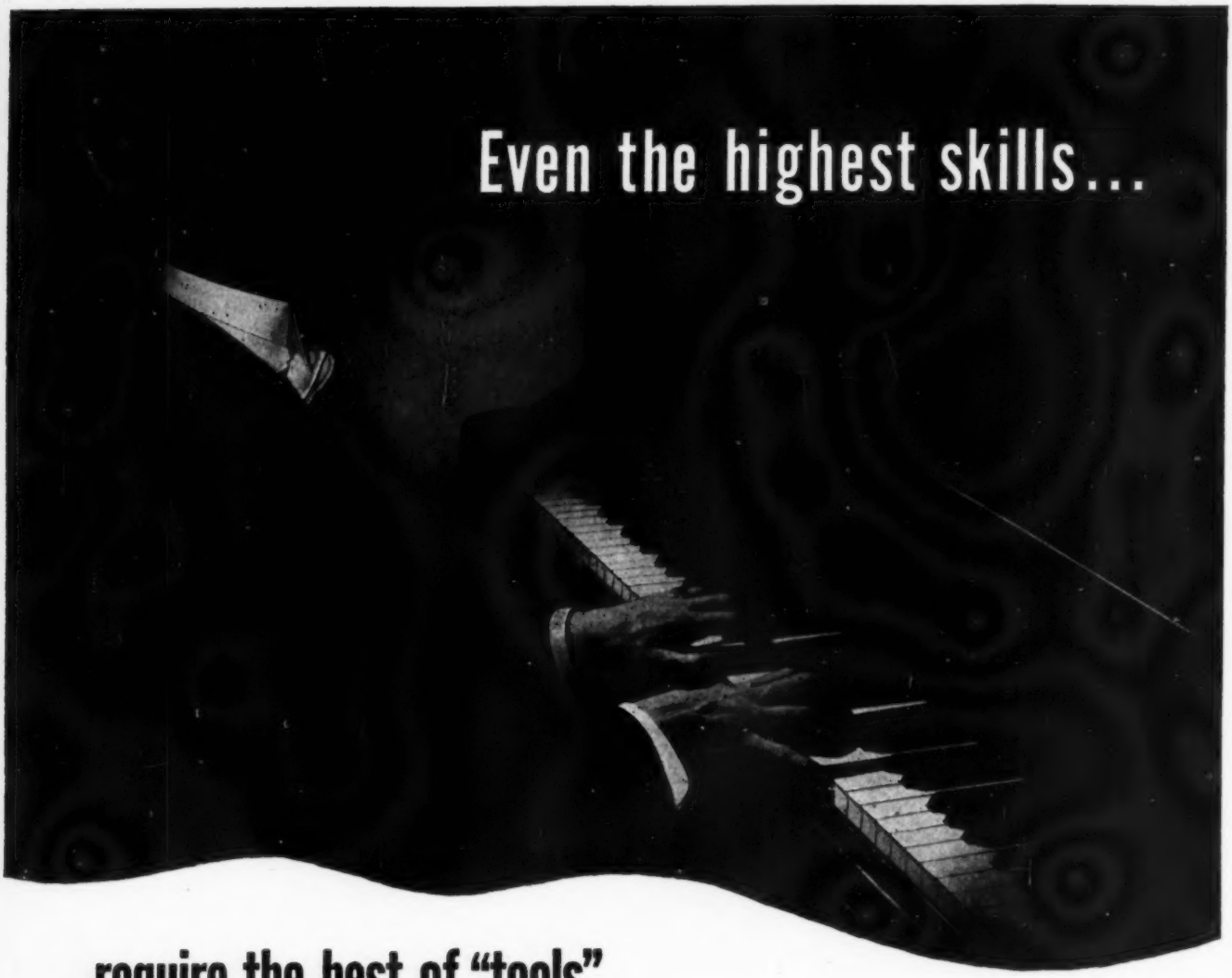

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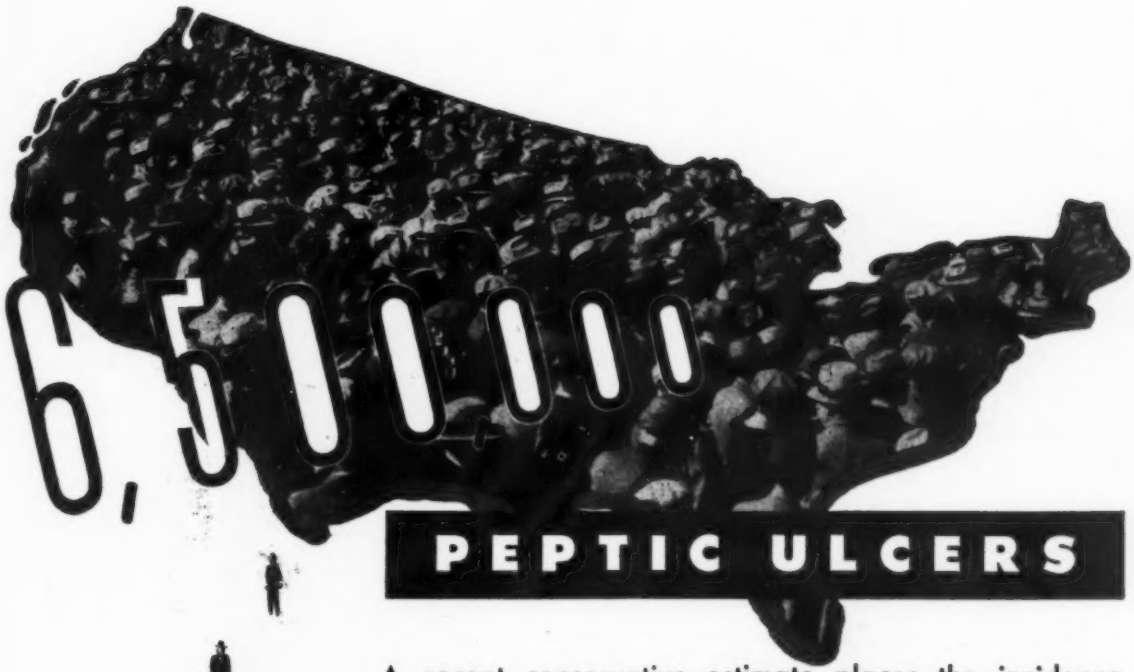


A recent conservative estimate places the incidence of peptic ulcer at 5 per cent of the population, or about 6,500,000 persons in the United States.* The great majority of this vast group of patients need a year-in and year-out program of rest, diet and acid neutralization.

Creamalin, the first aluminum hydroxide gel, readily and safely produces sustained reduction in gastric acidity. With Creamalin there is no compensatory reaction by the gastric mucosa, no acid "rebound," and no risk of alkalosis. Through the formation of a protective coating and a mild astringent effect, nonabsorbable Creamalin soothes the irritated gastric mucosa. Thus it rapidly relieves gastric pain and heartburn, and helps in the healing of peptic ulcers as well as in the prevention of ulcer recurrence.

Winthrop CHEMICAL COMPANY, INC.
NEW YORK 13, N. Y. • WINDSOR, ONT.

CREAMALIN
Trademark Reg. U. S. Pat. Off. & Canada
The first brand of Aluminum hydroxide gel

Supplied in 8 fl. oz., 12 fl. oz. and 16 fl. oz. bottles.

*Bureau of Health Education, A.M.A. *Hygeia*, 24:352, May, 1946.

DETROIT PUBLIC LIBRARY

B R E C K

Breck Hand Cleaner

Many workers suffer from chapped hands during the fall and winter months. Breck Hand Cleaner will help prevent chapping by keeping the hands in good condition. If the hands are rough and chapped, the use of Breck Hand Cleaner will not irritate the condition. It is a mild, bland hand cleaner produced for those who want the best in preparations for the care of the hands. Breck Hand Cleaner thoroughly but gently removes oil, grease, paint, printer's ink and other skin irritants.

JOHN H BRECK INC MANUFACTURING CHEMISTS . SPRINGFIELD 3 MASSACHUSETTS
CANADIAN ADDRESS . 47 CLARENCE STREET . OTTAWA

effective, smaller dosage

systemic sulfonamide

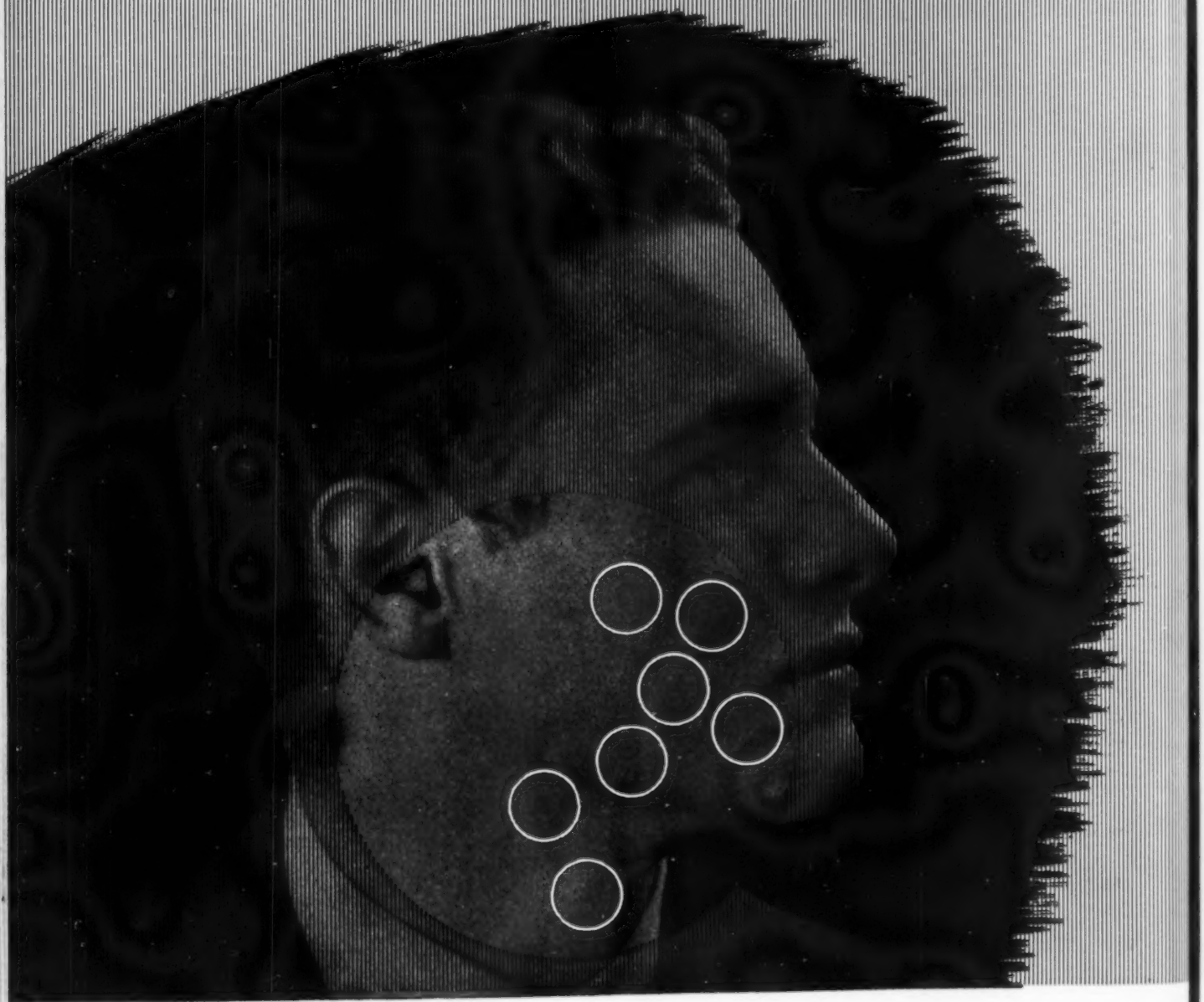
SULFA MERAZINE S&D

Because it effectively combats infection with approximately *one-half* the usual total dosage of sulfadiazine or sulfathiazole, Sulfamerazine is identified clinically as the *systemic sulfonamide of smaller dosage.* • Sulfamerazine is more rapidly and completely absorbed from the gastrointestinal tract and more slowly eliminated by the kidneys than sulfadiazine or sulfathiazole. Thus smaller or less frequent doses *produce* and *maintain* effective concentrations of the drug in the blood and tissues.

Sulfamerazine, a development of the Medical Research Division of Sharp & Dohme, has demonstrated its efficacy in the treatment of pneumococcic, hemolytic streptococcic, meningococcic and gonococcic infections. • Supplied in 0.5-Gm. tablets, for oral administration, in bottles of 100, 500 and 1,000; also in ¼-pound packages of powder. Sodium Sulfamerazine for intravenous administration is supplied in 5-Gm. vials of sterile powder and in 50-cc. ampuls of a 6% solution. Sulfamerazine chemical reagent is supplied in 1-Gm. vials. Sharp & Dohme, Philadelphia 1, Pa.

SHARP & DOHME

"the preferable local chemotherapy"



* A PRODUCT OF

White LABORATORIES, Inc. Pharmaceutical Manufacturers, Newark 7, N. J.

for oropharyngeal infections "susceptible to sulfonamide compounds"†

1. *High Local Concentration*—Prompt and long-sustained in effect; the sulfonamide is maintained in intimate, therapeutically effective concentration throughout entire oropharyngeal area.

2. *Negligible Systemic Absorption*—Even in maximal dosage, absorption is negligible; therefore likelihood of systemic toxic reactions is virtually obviated.

3. *Stable*—Full potency is retained under all ordinary conditions.

4. *Clinically Accepted*—Established by long and extensive clinical use.

Supplied in packages of 24 sanitaped tablets, in slip-sleeve prescription boxes.

†Fox, N. et al.: Arch. Otolaryng., *41*:279, 1945.

important

Please note that your patient requires your prescription to obtain this product from the pharmacist.

* White's

Sulfathiazole gum

Expediting and Assuring Instrument Protection . . . *at its best*

Air shipment to St. Vincent's Hospital, New York City, and South Nassau Community Hospital, Long Island, on October 14th.

Compare this significant data evaluating the potency of the IMPROVED *germicide*

Sporulating Bacteria	10% Dried Blood	Without Blood	Free Suspension
Cl. tetani	3 hours	3 hours	1½ hours
Cl. welchii	2 hours	2 hours	
B. anthracis	1½ hours	1½ hours	
Vegetative Bacteria			
Staph. aureus	5 min.	15 sec.	30 sec.
E. coli	3 min.	15 sec.	
Strept. hemolyticus	2 min.	15 sec.	

Proper cleansing of instruments before immersion will shorten the disinfecting period.

Available in 50 gallon drums, gallon and quart containers.

BARD-PARKER FORMALDEHYDE GERMICIDE

in its improved form destroys the most highly resistant pathogenic spores within 3 hours without the damaging effects on keen surgical edges and delicate steel instruments associated with other technics.

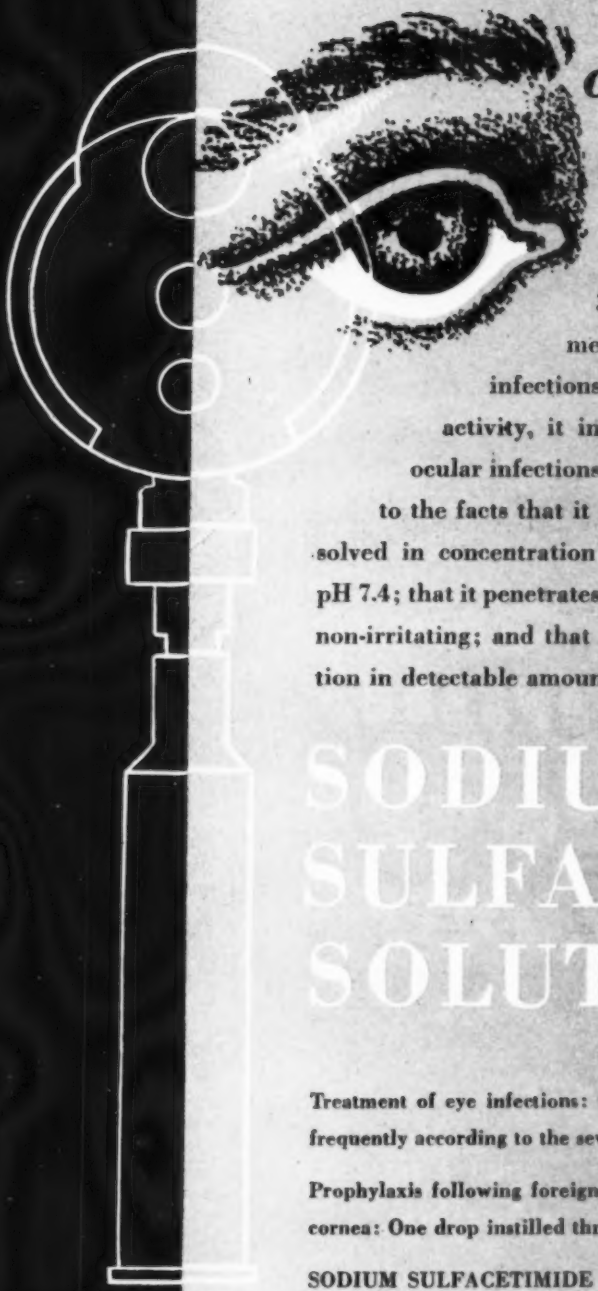
In wide demand by the many leading hospitals from coast to coast that recognize its dual economic values, prompt delivery has become an important phase of our service. Should normal transportation facilities be disrupted and dealer stocks be temporarily inadequate to replenish a hospital's depleted supply, every available means is employed to assure uninterrupted protection of the hospital's instrument investment.

Ask your dealer

PARKER, WHITE & HEYL, INC.
DANBURY, CONNECTICUT

B-P

A BARD-PARKER PRODUCT



ophthalmological requisite

SODIUM SULFACETIMIDE SOLUTION 30% is a new antibacterial solution for treatment and prophylaxis of all the common eye infections. Possessing a wide range of bacteriostatic activity, it inhibits numerous pathogens responsible for ocular infections. Its efficacy on local application is attributed to the facts that it is the only sulfonamide salt that can be dissolved in concentration as high as thirty per cent at physiologic pH 7.4; that it penetrates deeply into ocular tissues; that it is virtually non-irritating; and that it is not absorbed into the systemic circulation in detectable amounts.

SODIUM SULFACETIMIDE SOLUTION 30%

(Sodium SULAMYD)

Treatment of eye infections: One or two drops instilled every two hours or less frequently according to the severity of the infection.

Prophylaxis following foreign body injuries and abrasion to the conjunctiva and cornea: One drop instilled three or four times daily.

SODIUM SULFACETIMIDE SOLUTION 30% is supplied in 15 cc. amber, eye-dropper bottles.

Trade-Mark SULAMYD—Reg. U.S. Pat. Off.

SCHERING

Schering CORPORATION · BLOOMFIELD, NEW JERSEY

IN CANADA, SCHERING CORPORATION LIMITED, MONTREAL

a most effective local cl

White / LABORATORIES, INC.

Pharmaceutical Manufacturers,
Newark 7, N. J.

cal chemotherapy in otologic infections

1. **FIELD:** Effective in BOTH acute AND chronic otitis media.
2. **POTENTIATION:** Has enhanced antibacterial action.
3. **DIFFUSION:** Penetrates more completely into infected tissues.
4. **MICRO-DEBRIDEMENT:** By chemical action on necrotic tissues.
5. **ANALGESIA:** Without impaired sulfonamide activity.
6. **pH:** Approximately neutral in reaction—non-irritating and physiologic.
7. **DEODORANT:** Rapidly controls noxious odor of purulent discharge.

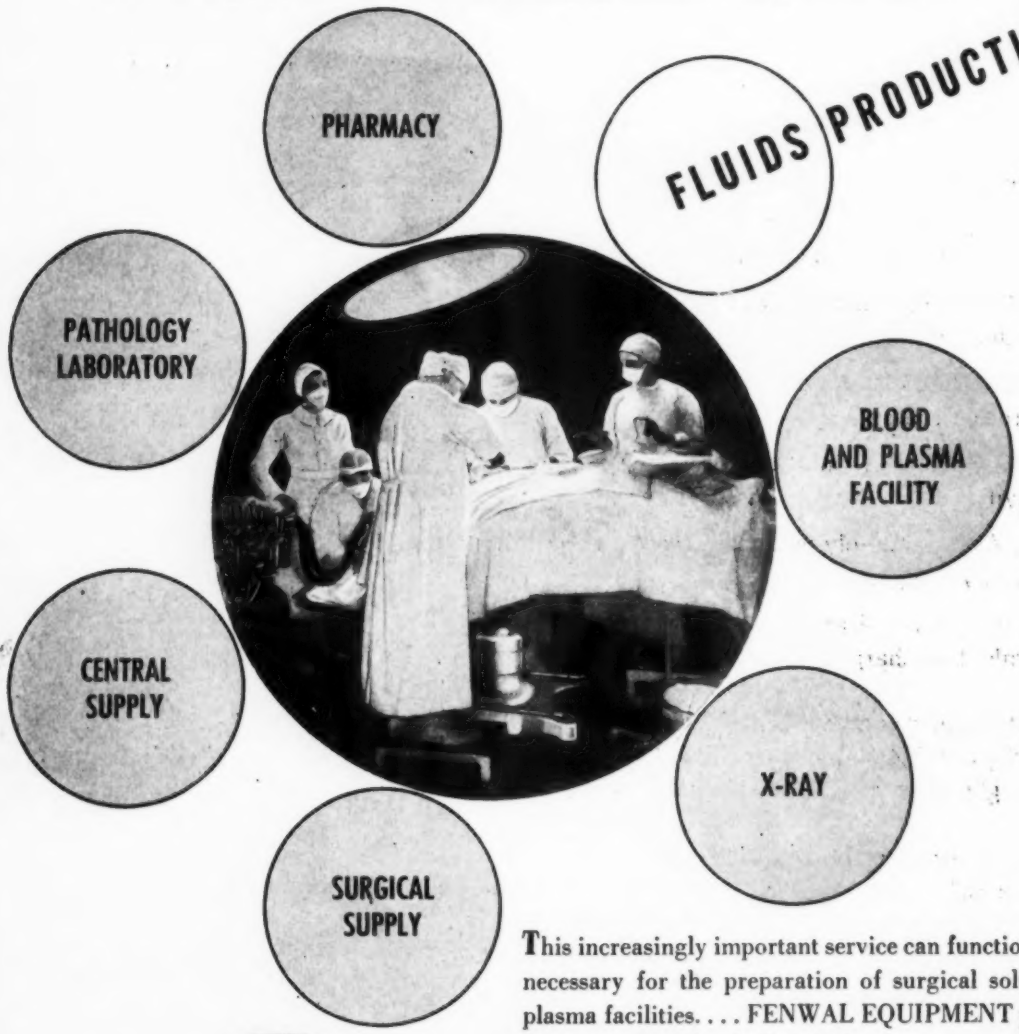
White's Otomide is composed of 5% Sulfanilamide, 10% Urea (Carbamide) and 3% Anhydrous Chlorobutanol in a specially processed glycerin vehicle of unusually high hygroscopic activity.

Supplied in dropper bottles of ½ fluid ounce (15 cc.)—*on prescription only.*

White's Otomide

Centralization means economy

Few hospital departments which form the chain of services that focus on the surgery, can offer an economy potential comparable to the



This increasingly important service can function to centralize equipment necessary for the preparation of surgical solutions, whole blood and plasma facilities. . . . FENWAL EQUIPMENT permits independent production control by the hospital.

The Fenwal technic of producing sterile fluids is appreciably less difficult than that of collecting blood and producing plasma. . . . FENWAL EQUIPMENT can be operated accurately and safely by any trained attendant.

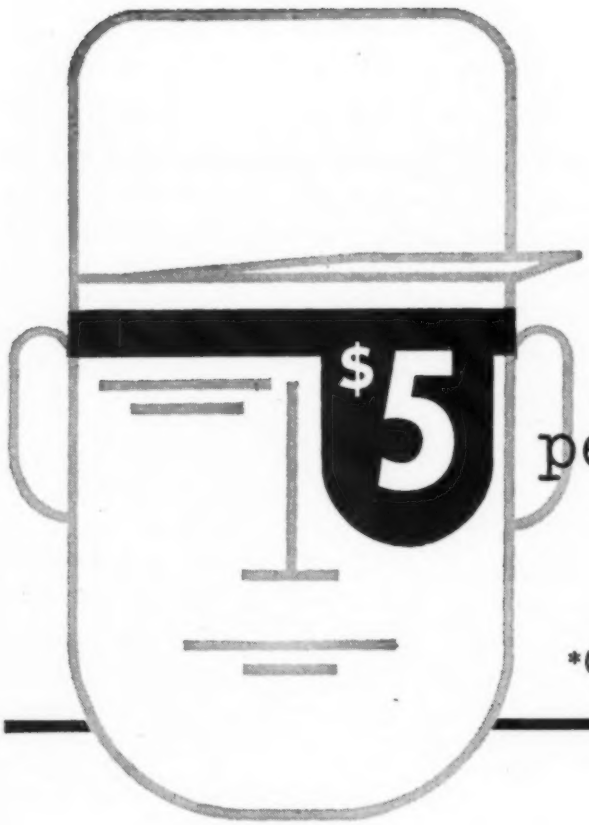
Negligible space is required for a Fenwal installation, a major proportion of which is essential to the blood bank facility as well. Centralization can thus mean important economies in time and labor *plus* the savings in Solution costs that will many times exceed the outlay for equipment and supplies.

Fenwal

ORDER TODAY *or write immediately for further information*

MACALASTER BICKNELL COMPANY

243 Broadway **Cambridge 39, Massachusetts**



Eye Accidents Cost Industry $5 per shop worker per Year*..

*(Society for the Prevention of Blindness)

98% of all Eye Accidents are Preventable by Wearing Goggles*

Send to your nearest A-O Safety Representative or direct to American Optical Company, Box M, for a copy of the new booklet, "Eye Accident Costs," which tells how much eye accidents cost, how to prevent them and how much you can save by preventing them.

American Optical COMPANY
Safety Division
SOUTHBRIDGE, MASSACHUSETTS
BRANCHES IN PRINCIPAL CITIES

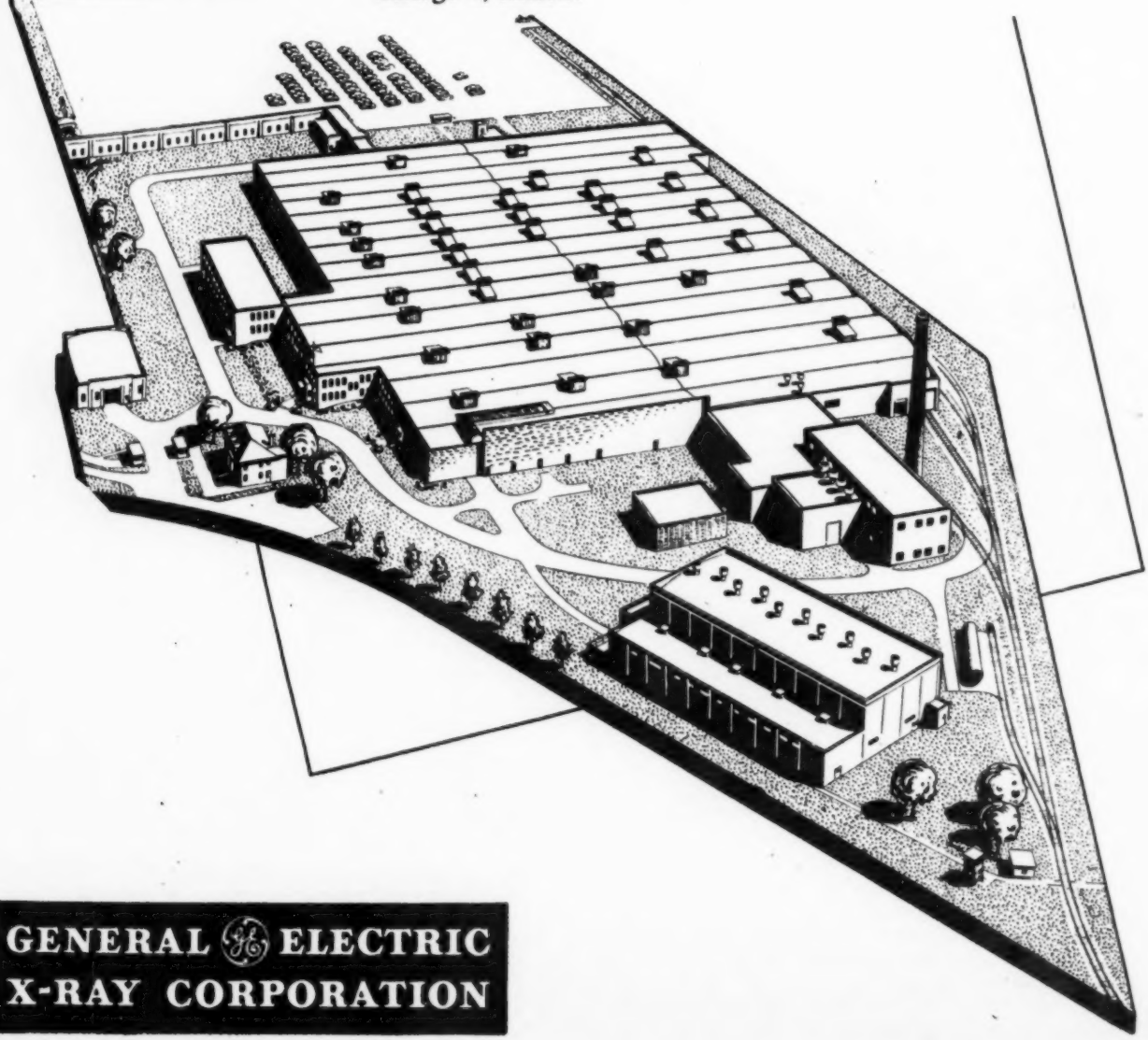
43-ACRE REMEDY FOR GROWING PAINS

We think it's a healthy sign when a 51-year-old organization has growing pains. And our remedy is the purchase of a new 43-acre plant located in Milwaukee. It includes adequate provision for expanding production and accelerating engineering research and development of radiographic and therapeutic apparatus.

Important to you is the fact that the move from Chicago to Milwaukee will mean no interruption of the production schedules established to meet present delivery promises.

Our Chicago plant will continue to run at full capacity. The Milwaukee plant, already in operation, will gradually assume an increasing share of the manufacturing load.

Here, in this modern manufacturing facility, is concrete evidence of our plans to meet present and future demands of your profession. And your demands will be met without sacrificing the high quality and efficiency that have always characterized the products of this organization. General Electric X-Ray Corporation, 175 West Jackson Blvd., Chicago 4, Illinois.



GENERAL ELECTRIC X-RAY CORPORATION

STREPTOMYCIN NOW IS AVAILABLE

Physicians now may obtain adequate supplies of this remarkable new antibacterial agent, without restriction, from their local pharmacists and hospitals.

CLINICAL INDICATIONS

Streptomycin is effective in the treatment of: Urinary Tract Infections, Bacteremia, and Meningitis due to susceptible strains of the following organisms:

Esch. coli

Proteus vulgaris

Klebsiella pneumoniae
(*Friedländer's bacillus*)

B. lactis aerogenes

Ps. aeruginosa
(*B. pyocyaneus*)

TULAREMIA

All *H. influenzae* infections

Streptomycin is a helpful agent also in the treatment of the following diseases, but its position has not been clearly defined:

Tuberculosis.

Peritonitis due to susceptible organisms.

Pneumonia due to *Klebsiella pneumoniae* (*Friedlander's bacillus*).

Liver abscesses due to streptomycin-sensitive bacilli.

Cholangitis due to susceptible pathogens.

Endocarditis caused by penicillin-resistant, streptomycin-sensitive organisms.

Chronic pulmonary infections predominantly due to streptomycin-sensitive flora.

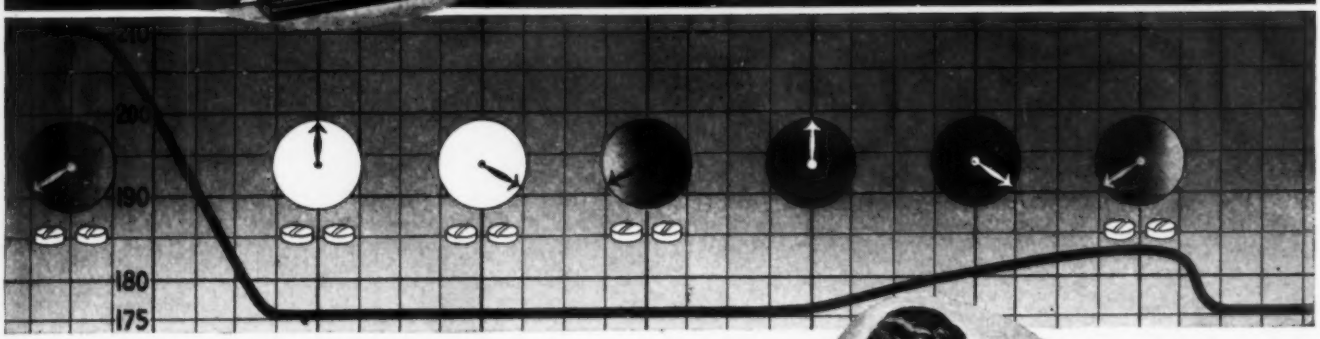
Empyema due to susceptible organisms.

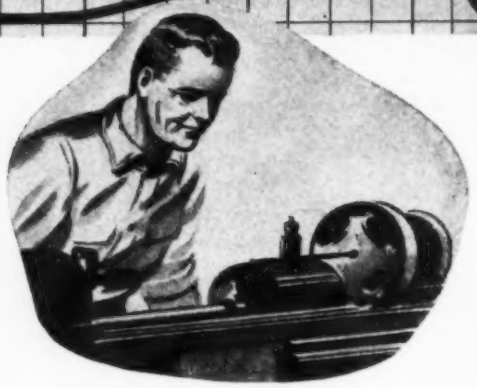
STREPTOMYCIN
(HYDROCHLORIDE)
Council MERCK *Accepted*

MERCK & CO., Inc. RAHWAY, N. J.
Manufacturing Chemists

MERCK MERCK MERCK

A More Normal Life for the
HYPERTENSIVE
with
NITRANITOL





The steady, prolonged vasodilation afforded by Nitranitol makes it possible to *maintain* blood pressure at safe levels for normal daily activities.

The action of Nitranitol is

GRADUAL—avoiding rapid "ups and downs" in arterial pressure.

PROLONGED—each dose overlapping the effect of the one before.

SAFE—permitting indefinite, continuous therapy.

Nitranitol—containing ½ gr. mannitol hexanitrate in each scored tablet—is available for prescription in bottles of 100 and 1000.

NITRANITOL
with
PHENOBARBITAL

combines ¼ gr. phenobarbital with ½ gr. mannitol hexanitrate. Scored tablets in bottles of 100 and 1000.

Trademark "Nitranitol"
Reg. U. S. Pat. Off.

MERRELL
1828

THE WM. S. MERRELL COMPANY · CINCINNATI, U. S. A.

Johnson's BACK PLASTERS

symptomatically

relieve BACKACHE three ways

First, these plasters provide mild counter-irritation which causes local and reflex hyperemia —helping to relieve congestion and muscle pain. *Second*, they are antispasmodic due to the mild spasmolytic action of their belladonna content. *Third*, they aid immobilization. Their supporting effect tends to reduce pain and muscle spasm.

You will find Johnson's BACK PLASTERS particularly effective in cases of low back strain, sacroiliac arthritis, myositis, lumbosacral fascitis and intercostal neuralgia. These plasters are safe, convenient and known by patients. They provide continuous supportive treatment over a period of several days. Through ease of application, they save the time of busy doctors.

* * *

Where even greater spasmolytic effect of belladonna is indicated, use the Johnson & Johnson BELLADONNA PLASTER which contains full U.S.P. belladonna strength.

Write for liberal free supply of Johnson's BACK PLASTERS and BELLADONNA PLASTERS. Both are worthy of increased clinical attention. Johnson & Johnson, New Brunswick, N. J.

Johnson's BACK PLASTER

IF YOUR eye safety program is designed only to protect workers' eyes, you may be missing the *big half* of a complete visual safety program. Industrial studies show that at least half of all workers need eyesight correction. Industrial eyewear, incorporating correction professionally prescribed for the requirements of every job, prevents "I-didn't-see" accidents (and increases worker productivity.) Your Bausch & Lomb distributor offers prescription service on industrial eyewear—visual *protection* and *correction* for your workers.

SAFETY FACT-FINDING CASE HISTORY . . .

BEFORE Ortho-Rater Visual Performance Standards

AFTER Ortho-Rater Visual Performance Standards

40% SAVING

This is the actual record of one department of a Bausch & Lomb Industrial (Occupational) Vision Service subscriber. The feature of this service is the Ortho-Rater system of visual performance measurement and the corollary fact-finding system as a basis for visual standards. In addition to improving safety records, the Industrial Vision Service contributes to increased production, improved quality, reduced labor turnover, and lower training costs.

◆ **Write for descriptive bulletin.**

BAUSCH & LOMB

OPTICAL COMPANY ROCHESTER 2, N. Y.

Nutrition and the Worker's Sense of Well-Being

EXTENSIVE surveys have shown repeatedly that good health—and with it, a sense of well-being—can hardly be enjoyed in the face of a poor nutritional state. Furthermore, below-par nutrition usually leads to decreased acuity, thus becoming responsible for poor work. In many instances it is the real etiologic factor in illness and absenteeism.

In the advice to the worker regarding the importance of adequate nutrition, emphasis should be placed on breakfast. Consensus among nutritionists calls for a breakfast providing from one-fourth to one-third of the daily caloric and nutrient needs. A widely accepted basic breakfast pattern, forming the basis for a good morning meal, calls for fruit, cereal, milk, bread and butter. Other suitable foods may be added when more is required.

The inclusion of a breakfast cereal in this morning meal is well justified, since the serving of cereal, milk and sugar provides not only readily utilized caloric food energy, but also biologically adequate protein, B-complex and other vitamins, and essential minerals. The quantitative contribution made by 1 ounce of hot or ready-to-eat cereal* (whole grain, enriched, or restored to whole grain values of thiamine, niacin, and iron), 4 ounces of milk, and 1 teaspoonful of sugar is indicated by this table.

CALORIES.....	202	PHOSPHORUS....	206 mg.
PROTEIN.....	7.1 Gm.	IRON.....	1.6 mg.
FAT.....	5.0 Gm.	VITAMIN A.....	193 I.U.
CARBOHYDRATE .	33.0 Gm.	THIAMINE.....	0.17 mg.
CALCIUM.....	156 mg.	RIBOFLAVIN.....	0.24 mg.
		NIACIN.....	1.4 mg.

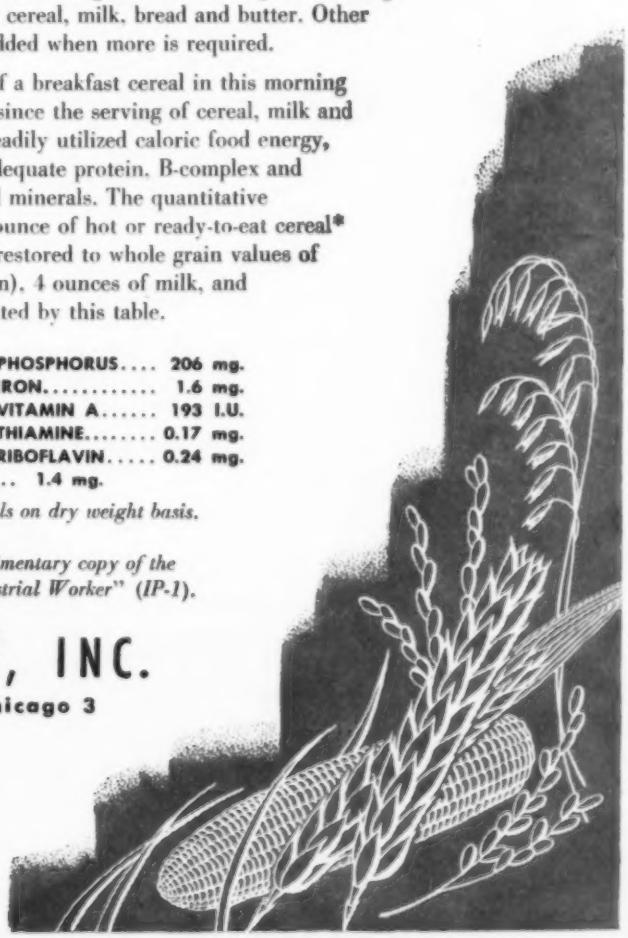
**Composite average of all breakfast cereals on dry weight basis.*

Physicians are invited to send for a complimentary copy of the brochure "Nutritional Health and the Industrial Worker" (IP-1).

CEREAL INSTITUTE, INC.

135 South La Salle Street · Chicago 3

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.



Big Game Hunters

● He hunts the "biggest game" of all... the microscopic and mysterious enemies of mankind.

He hunts not with a rifle, but with a microscope.

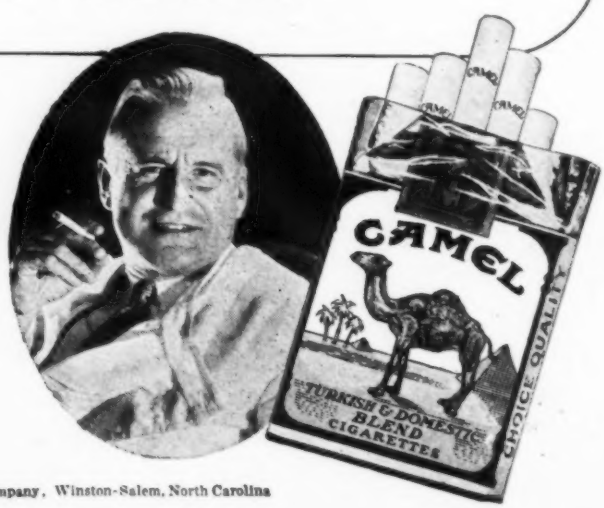
He is the doctor out to effect a cure by finding the cause—and combating it.

No place in the world, not even the remotest jungle, is too far, too dangerous, or too difficult for him to penetrate when the needs of medical science say, "This must be done."

According to a recent independent nationwide survey:

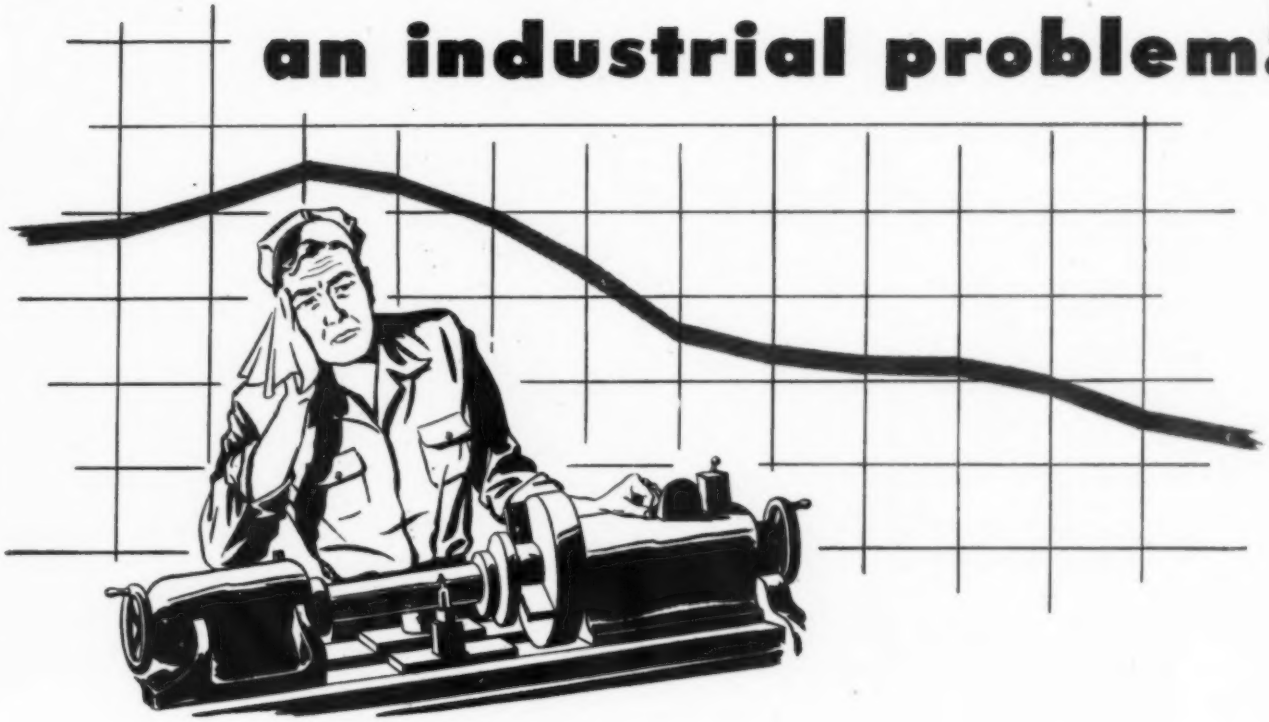
More Doctors Smoke Camels

than any other cigarette



R. J. Reynolds Tobacco Company, Winston-Salem, North Carolina

When constipation becomes an industrial problem!



Sluggishness often is a cause of inefficient, non-productive workers—workers who fall below production standards and increase the danger of industrial accidents.

Where sluggishness results from faulty elimination, we suggest TAXOL—the mild, non-griping laxative—for relief from continued constipation.

TAXOL has been recommended and prescribed by many physicians for more than 18 years. Works easily and rapidly with minimum discomfort . . . consistent action.

Containing *only* 1/10 of the U.S.P. dose of aloes per tablet, TAXOL cuts down discomfort resulting from high aloes dosage. Hyoscyamus extract, included in the formula, also helps to reduce griping.

Write today for free trial package and literature.

CONTENTS OF TAXOL—Each TAXOL tablet contains 2/5 gr. aloes, 1 gr. bile extract, 1/13 gr. hyoscyamus extract and 3/4 gr. lipoid-free, desiccated pancreas and duodenum. Active emodin is released from the aloes by TAXOL's bile extract.

FLEXIBLE DOSAGE—Depending upon individual need, 1 to 6 tablets daily, swallowed without chewing, before meals or at bedtime. Any laxative is contraindicated if symptoms of appendicitis or intestinal obstruction are present.

TAXOL

LOBICA, Inc. • 1841 Broadway • New York 23, N.Y.

Copper engraving
by M. Schongauer
ca. 1490

For mixed infections of surface lesions

FURACIN SOLUBLE DRESSING

A topical antibacterial, effective against a wide range of gram-negative and gram-positive organisms.

Contains 0.2% Furacin (5-nitro 2-furaldehyde semicarbazone) in a water-soluble base.

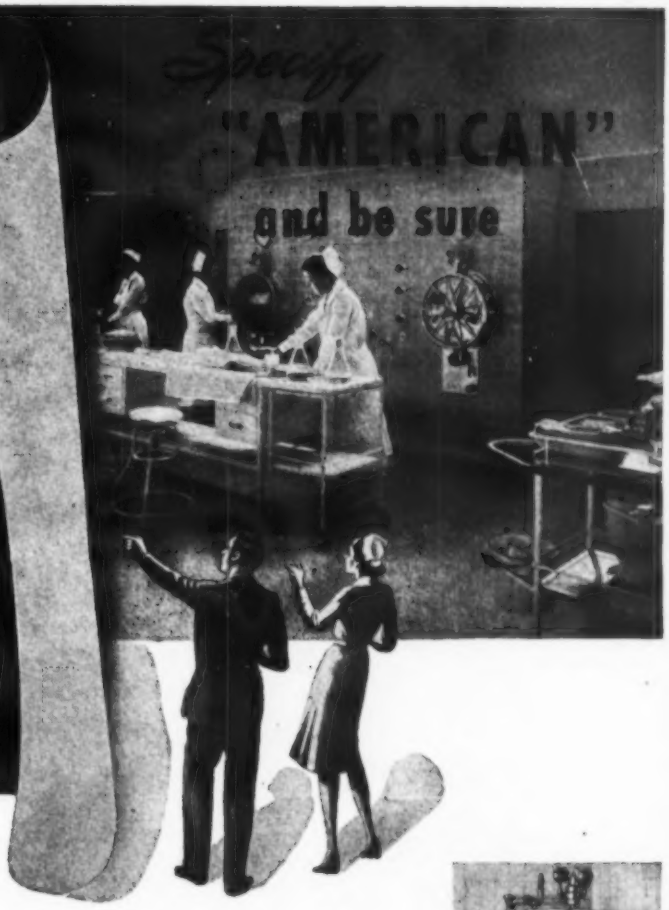
Indications:

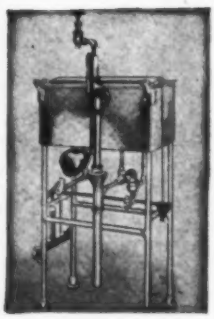
Infected surface wounds, or for the prevention of such infection • Infections of third and fourth degree burns • Carbuncles and abscesses after surgical intervention • Infected varicose ulcers • Superficial infected ulcers of diabetics • Secondary infections of eczemas Impetigo of infants and adults • Treatment of skin-graft sites • Osteomyelitis associated with compound fractures • Secondary infections of dermatophytoses

For information on Furacin Soluble Dressing, write: The Medical Director. Eaton Laboratories, Inc., Norwich, N. Y.

EATON LABORATORIES Inc.
NORWICH, NEW YORK

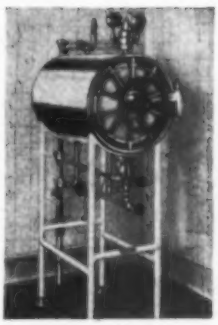
PLAN EFFICIENTLY ...it's more economical





INSTRUMENT and UTENSIL STERILIZERS . . .
which provide for complete utilization of available power and automatic control of rate of heating. EXCESS VAPOR REGULATOR eliminates losses usually sustained through wasteful creation and disposal of steam.

DRESSING and INSTRUMENT STERILIZERS . . .
Precision equipment of functional dependability. SMALL INSTRUMENT STERILIZERS in portable and cabinet models featuring "burn-out-proof" safety.



WATER STILLS . . .
in which a thermometer permits operator to gauge performance at all times and, to accurately adjust regulating valve. Provides safety against "burn-out" and cleaning simplicity that means longer periods of operation.

BULK STERILIZERS . . .
the outcome of wartime engineering efficiency. Unexcelled for sterilization of dry surgical supplies, mattresses, bedding, etc.

Sterilizers, Autoclaves and Stills for every Central Supply, Surgical Supply and Private Office need. Our experienced Planning Service is at your disposal.

REQUEST REPRESENTATIVE TO CALL or write today for descriptive literature.

AMERICAN STERILIZER COMPANY
Erie, Pennsylvania

DESIGNERS AND MANUFACTURERS OF SURGICAL STERILIZERS, TABLES AND LIGHTS

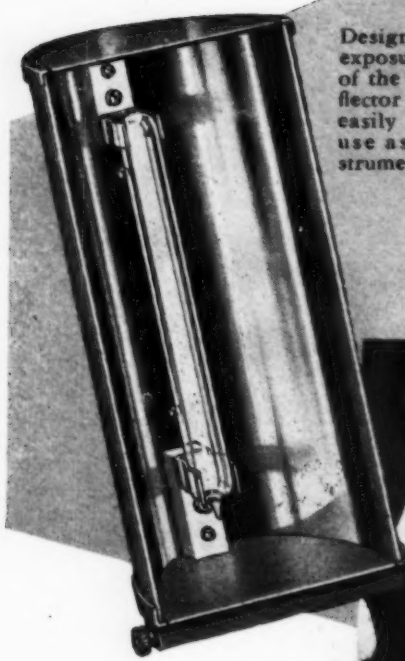
At Last...

A Cold Quartz Tube that . . .

NEVER DECREASES IN INTENSITY . . .

NEVER BURNS OUT . . .

NEVER NEED BE REPLACED . . .



Designed to permit exposure of any part of the body, the reflector assembly is easily removed for use as a hand instrument.

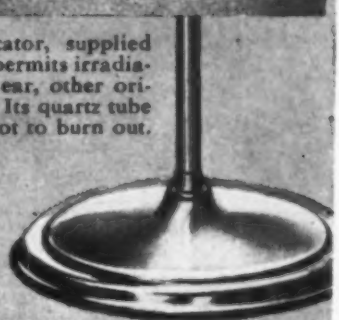
Spot application is easily and conveniently made with either lamp or Orificial Applicator.

THE *Sun-Kraft* Cold Quartz Ultraviolet Ray Lamp (Model S-1 for professional use) produces ultraviolet rays by radio-frequency ionization of low-pressure mercury vapor. The need for electrodes in the tube is eliminated, hence the quartz tube never fogs, never decreases in intensity, never burns out.

Its ultraviolet ray output far surpasses the standard requirements for cold quartz therapeutic lamps set by the Council on Physical Medicine of the American Medical Association. At 24 inches Model S-1 delivers 100 micro-watts per square centimeter (minimal Council requirement, 36 microwatts).

Since virtually no heat rays are emitted by this instrument, the quartz tube may safely be placed even in close contact with the skin area to be irradiated.

Orificial Applicator, supplied in special case, permits irradiation of mouth, ear, other orifices, and scalp. Its quartz tube is guaranteed not to burn out.



Model S-1 Sun-Kraft Lamp, complete with floor stand, orificial applicator, and protective case, $148.50.

Also available is the Sun-Kraft Model A-1 lamp specifically designed for home use when the prescription calls for ultraviolet therapy between office visits.

Sun-Kraft, Inc.

215-217 West Superior Street, Chicago 10, Illinois

THE *Sun-Kraft* LAMPS

Taking yet another step toward complete service in antibiotics, Bristol now announces

PENICILLIN TROCHES

containing 1000 units of calcium penicillin in a slowly dissolving base. These troches will produce an adequate salivary level of penicillin promptly and maintain the level for from 18 to 25 minutes.

In Vincent's infection
stomatitis
pericoronitis
ulcerative gingivitis

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1. Strong, L. W., and Willett, E. W.: Penicillin lozenges in the treatment of Vincent's stomatitis, U. S. Nav. M. Bull., 46: 353 (March) 1946.
2. Gwinn, C. D., et al.: Penicillin lozenges in the treatment of Vincent's infection and pericoronitis, J. South. California State Dent. A., 13: 17 (April) 1946.
3. Wright, R. B., and Rule, R. W.: Penicillin in the treatment of oral lesions. J. South. California State Dent. A., 13: 19 (April) 1946.
4. Schuessler, C. F., Fairchild, J. W., and Stransky, I. M.: Penicillin in the treatment of Vincent's infection, J. Am. Dent. A., 32: 551 (May) 1945.

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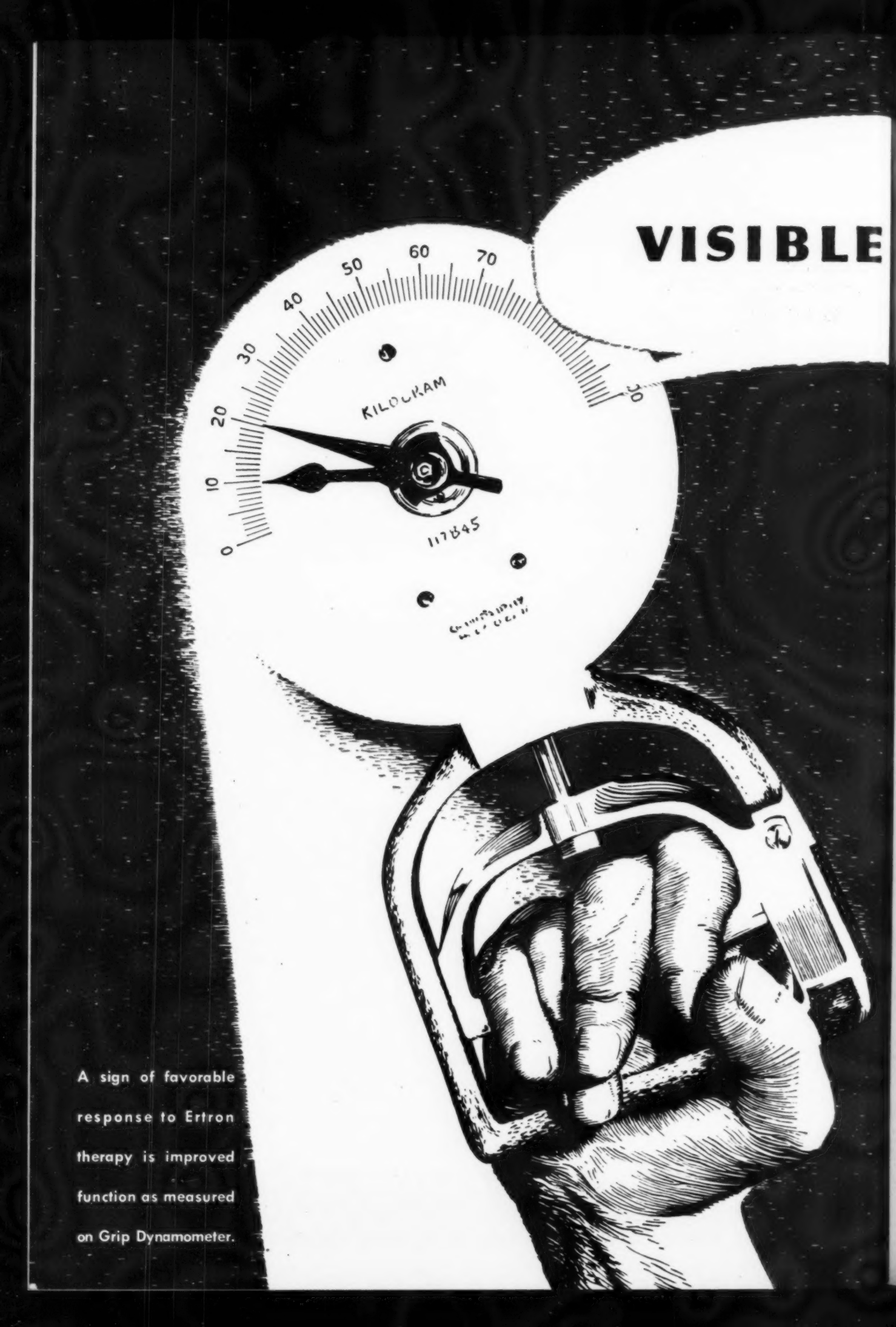

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The Journal of Industrial Health, Occupational Medicine and Traumatic Surgery

With which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery."

The Science, the Law and the Economics of Industrial Health

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The Protective Effect of Vaccination Against Epidemic Influenza B in an Industrial Plant

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RESPIRATORY infections head the list of medical causes for employee absenteeism. Epidemics of influenza are often explosive in nature and may quickly incapacitate so many employees as to make the operation of a plant extremely difficult or impossible. The cost to industry is high.

Encouraging results were obtained during the winter of 1943-1944 by members of the Special Influenza Commission[1] through subcutaneous vaccination with influenza virus vaccine.

Faced with a possible epidemic of influenza in November, 1945, and having a small supply of the vaccine produced for the Influenza Commission, it was decided to vaccinate several hundred employees in a war industry. The purpose of this report is to compare the incidence of the disease and the time lost in the vaccinated group with the unvaccinated group during the ensuing epidemic of influenza B.

The coordinated study by members of the Influenza Commission represented the efforts of six laboratories, and was conducted in Army Specialized Training Program Units at eight colleges and universities, and in five New York Medical and Dental Schools. Approximately 12,500 men were involved. Francis[2,3] summarizes the result of this controlled study as follows: "The incidence of clinical influenza in the vaccinated group comprising 6,263 men was 2.22% and in the control group of 6,211 the incidence was 7.11%, a ratio of 1 to 3.20." Vaccination with inactivated A and B virus was thus shown to confer a significant degree of immunity against influenza. The influenza was primarily type A.

Vaccine Used in Study

STUDIES by Smith, Andrews and Laidlow[4] in England and Francis[5] in the United States have proven that influenza is caused by a virus. Two types of influenza virus are at present identified—type A and type B. The latter was discovered by Francis in 1940.[6] The disease varies from an extremely mild illness to a rapidly fatal pneumonia.[7] The clinical course of the disease is too well known to require discussion except to say that most workers[8] agree that the two types A and B cannot be differentiated clinically. In 1941, Hirst[9] introduced a simple test for detecting influenzal antibodies. The test depends upon the fact that red cells of certain fowls and mammals are agglutinated by both influenza Type A and Type B viruses, and that convalescent human sera specifically inhibit this agglutination. Recognition of the disease and type depends upon demonstrating a marked increase in specific antibodies in the patient's blood during the time between the acute phase of the disease and the convalescent stage.

During the past three years, members of the Commission an Influenza of the Army Epidemiological Board have watched for outbreaks of respiratory disease and have endeavored to identify them. They predicted an outbreak of influenza late in 1945 and, upon the advice of Dr. Thomas Francis, Jr., and Dr. J. E. Salk, we were preparing to vaccinate some of our employees. Just as the program of vaccination was begun, there was an increase in respiratory infections, which proved to be the beginning of an epidemic of influenza.

Effect of Employee Vaccinations

A LIMITED supply of combined, concentrated influenza A and B vaccine prepared from infected allantoic fluid[10] was used. One cubic centimeter was injected subcutaneously.

Through the kindness of Drs. Francis and Salk, we were able to send samples of blood during the acute and convalescent phases (approximately 10 day intervals) in cases suspected to be influenza. At their laboratories in Ann Arbor, bloods from 13 of our cases were tested using the Salk modification of the Hirst technique.[11] In 8 of the 13, or 61%, the agglutination tests were positive for type B influenza. The studies of Francis[12] *et al*, indicated that there were scattered cases of influenza B throughout 1945 in this country and that the disease reached epidemic proportions in November and December.

There were 4,646 employees at this project. Three hundred and sixty-six were given a single subcutaneous injection of one cubic centimeter of combined concentrated influenza A and B vaccine prepared from infected allantoic fluid early in November. A charge was made for this service. Four thousand two

hundred and eighty employees were not vaccinated and the incidence of influenza and loss of time were carefully checked in this group and compared with the vaccinated group. The average age of the vaccinated employees was 37, while, by a happy coincidence, the average age of the unvaccinated group was 37. The percentage of female employees in the vaccinated group was 38, while in the unvaccinated group it was 17. Since in our study the incidence of the disease was approximately the same in males and females it was not felt that the higher percentage of women in the vaccinated group was of any significance. One might assume, however, that people most susceptible to repeated respiratory infections would be more likely to seek relief through vaccination. With this one exception it was felt that the physical and environmental condition of the vaccinated and control group differed very little.

Sore arm	77.3%
Aching muscles	40.0%
Headache	37.0%
Aching joints	31.8%
Elevated temperature	29.5%
Chills	19.5%
Nausea and vomiting	6.5%

In order to determine what undesirable effects followed the vaccinations, questionnaires were sent to all vaccinated persons. Three hundred and eight replies were received. Results of reactions from the vaccine are listed below in Table I:

Instances of reactions sufficiently severe and prolonged as to cause loss of time from work were rare.

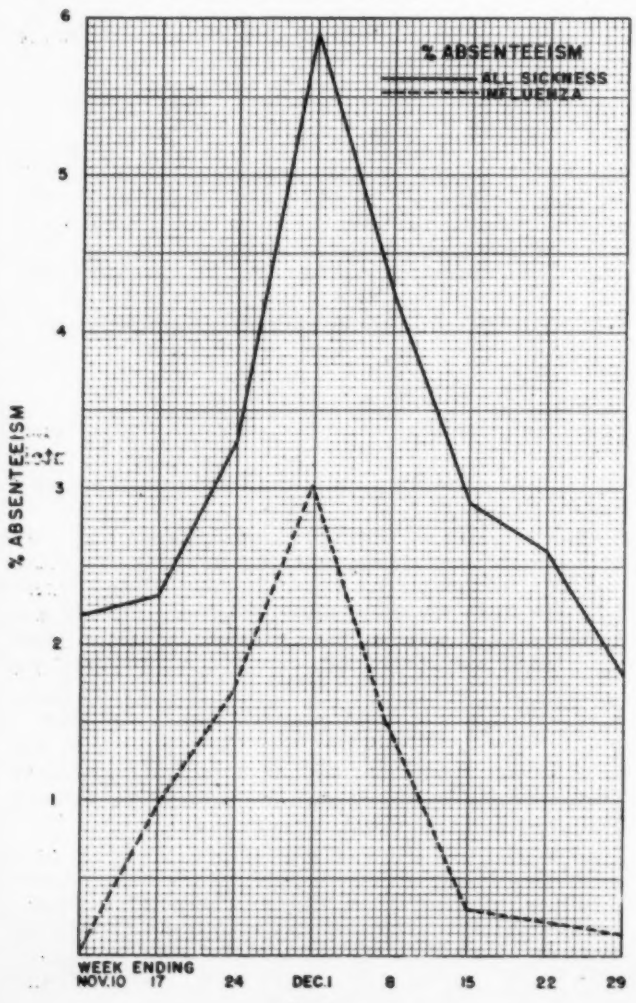

Fig. 1.
Graph showing influence of influenza upon absenteeism

The graph, Fig. 1, indicates the influence of influenza upon the total absenteeism due to sickness for this period.

Of the 366 employees vaccinated, 13 developed influenza. This is an incidence of 3.55%. Only seven of the 13 who developed "flu" were vaccinated more than seven days before the onset of the illness. Only this group could be presumed to have had time to develop a sufficient titre of antibodies to give protection. This is an incidence of 1.94%.

Of the 4,280 employees who were not vaccinated, 352 developed influenza. This is an incidence of 8.23%, or 2.3 times as great as in the vaccinated group. It is 4.25 times as great as in the group vaccinated early enough to give reasonable time for antibody response.

Absentee days due to sickness was 0.207 per person in the vaccinated group as compared to 0.473 per person in the unvaccinated group. Loss of time due to sickness in the unvaccinated was therefore 4.4 times as great as in the group vaccinated early enough to allow antibody response. These results are summarized in Table II.

TABLE II.
INCIDENCE OF INFLUENCE AND ABSENTEEISM IN VACCINATED AND UNVACCINATED GROUPS DURING AN EPIDEMIC OF INFLUENZA B—NOVEMBER 3, 1945, TO DECEMBER 29, 1945, INCLUSIVE

	Number	Number developing Influenza	% Developing Influenza	Comparative Incidence	Sickness Absentee days per person
Vaccinated Group	366	13	3.55	1.83	.207
Unvaccinated Group	4280	352	8.23	4.25	.473
Vaccinated more than 7 days before developing "Flu"	360	7	1.94	1.00	.108

Comparison with Similar Studies

NO PREVIOUS reports of studies to determine the effectiveness of vaccination against influenza in industry have been made to our knowledge.

Francis, Salk and Brace[12] report an incidence of Influenza B of 1.15% among a vaccinated group of 600 army men, and an incidence of 9.91% in a comparable group of 1100 army men who were not vaccinated. This was during the same epidemic of late 1945, as described in this paper.

Summary and Conclusions

THREE hundred and sixty-six employees were given subcutaneous inoculations of one cubic centimeter of inactivated influenza virus, types A and B, at the onset of an epidemic of influenza B. Thirteen developed influenza B during the following eight weeks, or 3.55%. Six of these developed "flu" during the week following vaccination. The incidence in the group vaccinated in time for antibody response was 1.94%. In the comparable group of 4,280 unvaccinated employees, the incidence was 8.23%. The incidence was 4.25 times as great in the unvaccinated group as in the group vaccinated in sufficient time to give good protection.

Loss of time due to sickness was 4.4 times as great in the unvaccinated group as in the group vaccinated early enough for antibody response.

The evidence indicates a definite protective effect of vaccination against epidemic influenza B.

It is recommended that employees be encouraged to take "flu" vaccine, and that industry made it reasonably easy for them to secure the inoculations.

It is hoped that the Influenza Commission will continue to supply information regarding incidence and

spread of Influenza A and B so that the plant physician may at least make a reasonable guess as to the optimal time for vaccination of employees.

References

1. Commission on Influenza, Board for the Investigation and Control of Influenza and other Epidemic Diseases in the Army. Preventive Medicine Service, Office of the Surgeon General, U. S. Army.
2. FRANCIS, JR., T.: *Bull. New York Acad. Med.*, 21:337, 1945.
3. Clinical evaluation of vaccination against influenza; preliminary report by members of Commission on Influenza, Board for Investigation and Control of Influenza and other Epidemic Diseases in the Army. Preventive Medicine Service, Office of Surgeon General, U. S. Army. *J.A.M.A.*, 124:982-985, April 1, 1944.
4. SMITH, W., ANDREWS, C. H., and LAIDLOW, P. P.: *Lancet*, 2:66, 1933.
5. FRANCIS, JR., T.: *Science*, 80:457, 1934.
6. FRANCIS, JR., T.: New Type of Virus from Epidemic Influenza. *Science*, 92:405, (November, 1940); Epidemiological Studies in Influenza.
7. STUART-HARRIS, C. H.: *Brit. M. J.*, 1:209-216, February 17, 1945.
8. STANFIELD, J. M., and STUART-HARRIS, C. H.: *Lancet*, 2:789-790, December 25, 1943, Clinical Study of Outbreak of Influenza B during winter of 1942-1943.
9. HIRST, G. K.: The Quantitative Determination of Influenza Virus and Antibodies by Means of Red Cell Agglutination. *J. Exper. Med.*, 75:47, January, 1942.
10. FRANCIS, JR., T.: The Development o the 1943 Vaccination Study of the Commission on Influenza. *Amer. J. Hyg.*, 42:1, July, 1945.
11. SALK, J. E.: A Simplified Procedure for Titrating Hemagglutinating Capacity of Influenza Virus and the Corresponding Antibody. *J. Immunol.*, 49:87, August, 1944.
12. FRANCIS, THOMAS, JR., SALK, JONAS E., and BRACE, WILLIAM M.: The Protective Effect of Vaccination against Epidemic Influenza B. *J.A.M.A.*, 131:275-278, May 25, 1946.

Refrigeration in Trauma of the Extremities

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CURRENT observations relevant to the effects of low temperatures emphasize the anesthetic properties of cold when combined with tourniquet anemia. In 1941 we rationalized a somewhat different application of crymotherapy to the treatment of severe crushing injuries involving the extremities, and this paper offers the conclusions based on six years' experience with the method.

The majority of our industrial patients were employed in railroad or heavy foundry work and sustained injuries consisting of extensively comminuted fractures frequently compounded, with soft tissue and blood vessel damage so marked as to make amputation a probability.

The application of reduced temperatures locally to traumatized areas follows as a logical sequence to the biologic effects of cold which have been reported by other investigators. These are:

1. The relief of pain.
2. The prevention of shock.
3. A decrease in cellular metabolism locally.
4. The inhibition of bacterial growth:
   (a) decreased systemic toxemia.
   (b) control of anerobic (gas gangrene) infection.
5. The induction of surgical anesthesia.

Employment of cold for tissue preservation with hope for ultimate functional and morphological rehabilitation, is a therapeutic concept distinct from that of it's use as an anesthetic preliminary to amputation.

Believing that preservation as a function of crymotherapy is a valuable aid in treatment, we propose a technique by which the properties of conservation and/or anesthesia are made available in a convenient manner.

Tissue Reaction to Reduced Temperatures

THE effects of cold on human tissues depend principally on four variables, namely:

1. Tissue blood supply.
2. The degree of temperature.
3. Length of exposure.
4. Presence or absence of moisture.

The pioneer work of Allen and Crossman demonstrated that a limb may be maintained in viable state with refrigeration after it's arterial blood-supply has been completely interrupted by tourniquet and ample clinical evidence is accumulating to suggest that such tissues will return to normal after periods of exposure lasting for several weeks under proper conditions.

Satisfactory therapeutic results can be obtained in many instances by the use of cold without tourniquet anemia and in peripheral crushing injuries we feel that restoration of function, if at all possible, is best accomplished in this manner. Temperature reduction to a degree sufficient for complete refrigeration (0°-10°C) is difficult if not impossible to attain in the presence of an uninterrupted vascular flow, but Safford has shown that some degree of anesthesia and quite satisfactory preservation is compatible with temperatures as high as 45°-65°F. which can be reached and maintained easily without benefit of tourniquet. The factor of hydration is of significance in determining the effect of refrigeration. Cells which would be destroyed in the wet state, may be preserved in the dry state by reduced temperature. Clinically this is illustrated by cases of immersion foot encountered in cold climates. Here the physio-chemical changes attending refrigeration are severely aggravated by wetness, and odema due to increased capillary permeability. Hemo-concentration with intravascular clotting and irreversible tissue necrosis from profound asphyxia occurs.

In discussing the effects of refrigeration, the diameter of a treated area is of considerable practical importance. To produce effective temperatures deep within a thick limb will require a lower initial external temperature or a longer period of refrigeration. Since ice formation within tissues during cooling is detrimental, the marked capacity of skin for super-cooling, i.e., the ability to be chilled to 32°F without actual freezing, is a valuable safety factor. This capacity may, however be exceeded by injudicious use of freezing mixtures (ice and salt; carbon dioxide snow; ethyl chloride) which should always be avoided unless it is necessary to produce a very rapid temperature descent which can then be maintained by more conservative methods. Russian workers have shown that under ideal conditions, three to four hours are required to anesthetize the average adult thigh rendered anemic by Esmarch bandage. Extraordinarily muscular limbs, or those having a thick sheath of insulating fat will require correspondingly longer periods.

Employing only cracked ice without tourniquet, we found it impossible to produce undesirable freezing effects regardless of the length of exposure. In several patients the refrigeration under these conditions was continued more than a week with successful results.

Although we routinely do not apply a tourniquet, patients and their injuries are treated individually and observed for signs of clinical improvement in response to crymotherapy. Indices for success or failure are sought first systemically and secondarily at the site of local trauma. If, by whatever refrigerating technique, the pulse rate and oral temperature remain normal; if symptoms of generalized toxemia are absent and if local tissue viability increases, the therapy may be considered at least temporarily effective. Usually after 24-72 hours, at the surgeon's discretion, the

treated limb may be allowed to gradually return to normal body temperature, while careful hourly observation of the patient's progress is maintained. A continued favorable response, using the criteria outlined above presages ultimate recovery.

A visible increase in local tissue mortality at the site of injury, accompanied by signs of septic absorption indicate need for more prolonged refrigeration. Should these symptoms particularly toxemia, appear *during* refrigeration, the area is being ineffectually cooled and it's temperature must be further reduced. This may often be accomplished by increasing the amount of freezing agent, and by improving limb insulation against local cold loss. Failure of these procedures indicates the need for tourniquet application to remove the interfering thermal effects of a free arterial blood supply.

The tourniquet is wrapped at a point three inches distal to the upper level of refrigeration and we prefer two tight turns of half-inch rubber tubing to a broader application. This should be considered a conservative and very effective maneuver. If the area has been properly chilled, placing the constrictor is entirely painless. Although Lake has demonstrated absence of hemoglobin-oxygen disassociation at temperatures of 30°F. the very much lowered metabolic tissue requirements induced by crymotherapy are amply satisfied from oxygen dissolved in the blood plasma. Limbs which contain arteriosclerotic vessels are considered to be in a pathologic state of chronic subclinical ischemia, and, as would be expected, are very easily and rapidly brought to effectively low temperatures.

Consideration of the effects which refrigeration has in the prevention and treatment of traumatic shock should include the work of Allen who produced experimental crushing injuries of the extremities in rats. Of those animals not refrigerated, mortality was 100% after sixty minutes of tourniquet anemia, while in the refrigerated group, death from shock was delayed as long as eight hours. Therapeutic freezing may prevent the liberation and delay the systemic absorption of histamine-like substances from extensively traumatized areas.

Similarly beneficial results have been observed with regard to inhibition of local bacterial growth. Refrigeration apparently retards organisms particularly the gas bacillus group so effectively, as to suggest it's use together with specific serum (antitoxin) in every infection of this type. Russian surgeons reported decreases in the number of bacteria from 5949 colonies before, to 95 colonies after cooling. Their patients were all scheduled for amputation enabling them to use this reduction in bacterial flora to advantage.

Case Report

F. K., AGE 56, employed at a local foundry sustained a crushing injury when a row of steel locomotive wheels weighing about two tons tilted suddenly and smashed his left leg halfway between ankle and knee. He was seen at the plant dispensary. Physical examination revealed a moderately dazed and incoherent male exhibiting intermittent periods of mental alertness accompanied by marked apprehension and nervousness. The skin was pallid with slight cyanosis of the nail beds. Pulse 116/min.; B.P. 64/20; Resp. 36/min. Heart tones were good, chest sounds normal and distinct. Further cursory examination disclosed the local trauma to be confined within an area of the left mid-leg about four inches wide. The damage here was considerable. Blood flowed profusely from a

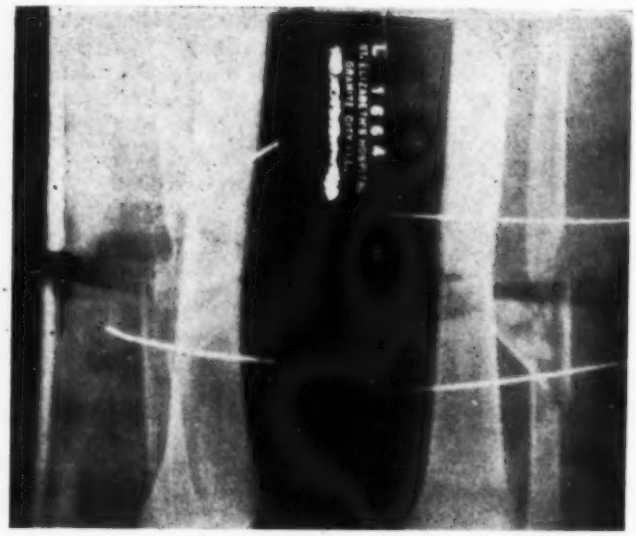

Fig. 1.
Compound comminuted fracture of left tibia and fibula, reduced and maintained in position by Steinman pins transfixing fragments and incorporated in light plaster cast

deeply lacerated contusion involving the entire circumference of the limb. The distal fragment of a transversely fractured tibia projected anteriorly for several inches through the skin, and there was evidence of fibular fracture also. Muscular structures were extensively macerated giving the impression of almost complete loss of structural continuity at the site of injury. Reaction to all stimuli distal to the lesion was absent. On the contralateral side hyperactive responses were elicited. Arterial pulsations in the foot (posterior tibial and dorsalis pedis) could not be detected. Diagnosis: traumatic shock; compound comminuted fracture of tibia and fibula; severe soft tissue contusion; rupture of anterior tibial artery. Dilaudid gr/1/16 was given intravenously, a sterile dressing applied and the limb securely splinted. On arrival at the hospital 500cc. plasma was administered, the leg surrounded with a two-inch layer of shaved ice from the knee to toes and wrapped in rubber sheeting. The patient was placed in Fowler position to allow drainage of the melting ice into a large bucket. Ice was replenished every twenty minutes for two hours until a sterile thermometer inserted deep into the laceration indicated a temperature of 46°F. The patient's response was prompt and gratifying. Subjective comfort coincided with the onset of re-

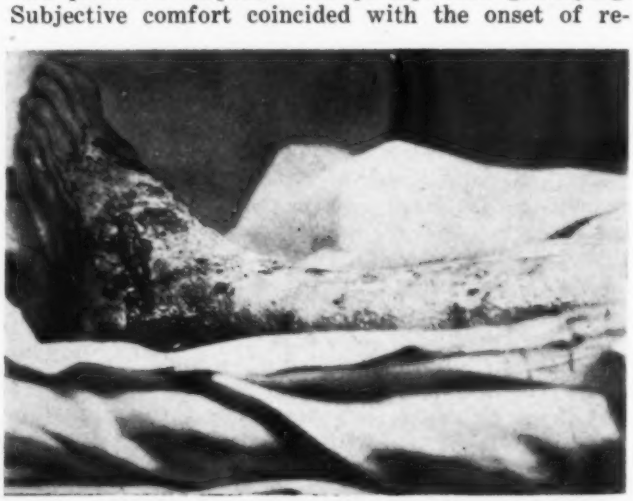

Fig. 2.
Appearance of granulating area after spontaneous (and surgical) removal of superficial plaques of dry gangrene

frigeration. B.P. rose to 128/80; pulse 84/min. of good volume. On the following day small areas of dry gangrene appeared on the dorsum of the foot, and although the general condition remained excellent, the prognosis for survival of the leg seemed quite unfavorable. Nevertheless after thorough antiseptic preparation the tibial fragments were reduced manually, transfixed (Fig. 1) by thin Steinman pins above and below the fracture, then incorporated in plaster. Refrigeration which was resumed, afforded perfect anesthesia for this procedure. Seventy-two hours following the accident, slight voluntary movement was present in the toes, but cutaneous gangrenous involvement appeared more extensive. Five days after the injury greyish-blue areas of questionable viability had become pink, and active refrigeration was replaced by ice bags surrounding the limb. Within two weeks the hard shell-like plaques of superficial gangrene had separated sufficiently to allow their complete removal, leaving areas of healthy granulation tissue (Fig. 2). Subsequent progress was uneventful and terminated in full recovery. It is our considered opinion, based on similar injuries encountered prior to the advent of refrigeration, that this patient, if conventionally treated, would have become a prosthetic-wearing amputee.

SAFFORD, F. K.: *Arch. Surg.*, 49:12-22, 1944.
ALLEN, F. M.: *Am. J. Surg.*, May, 1945.
YUDIN, S. S.: *Curr. Red. in Anes. and Analg.*, pp. 216-219, Sept., 1945.
LOBACHEV, S. V.: *Curr. Res. in Anes. and Analg.*, pp. 22-30, Jan., 1946.

Dental Relations in Industrial Health Services

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IN THE past four years notable progress has been made in the development of industrial health services. This development was dictated by the great expansion of industry necessary to meet the war demands for production. Among the many factors which operated to complicate the health picture in industry were the use of new materials and of discarded toxic materials because safer ones were not available. The employment of untrained older and younger men and women to replace workers who were with the armed forces also caused an increase in the incidence of sickness, material spoilage, and absenteeism. How well those who were responsible for industrial health services met this challenge is now a part of the record of war achievement.

Dentistry in industrial health services was born at about the turn of the century, gained impetus during the production period of World I, flourished during the twenties, and then languished during the depression of the thirties. One reason for this recession was that it became necessary for industry to curtail expenses, and many dental programs not having succeeded in becoming an integral part of the plant's general health services, were the first to be sacrificed in the interests of economy. This is understandable, for dental programs in industry too often were initiated and conducted on the same basis as dental practice in private offices. Often the only difference between those dental programs in industrial plants and private dental practice was that the dental office was located in a plant and not in an office building. The patients served were those employees who voluntarily appeared for treatment. All types of dental service were rendered for this group of employees who would have sought treatment from outside dentists had plant facilities not been available.

Thus, the larger percentages of employees, those not interested in their diseased mouth conditions, were never seen. Oralogy, or the practice of medical and dental cooperation for health, did not exist. Too often the industrial physician thinks of the industrial dentist as one who is only qualified to treat teeth by stopping toothache, by filling cavities, by extracting teeth, and by replacing lost teeth with artificial appliances. The industrial dentist should be more than this. Dentists by education and training should be capable of diagnosing all diseased conditions that affect the tissues and structures in the oral cavity. In other words, as a stomatologist he should recognize and treat all deviations from normal that occur in the tissues of the mouth. Morris W. Kilgore, M. D., in an article published in the *Journal of the Houston District Dental Society*, September, 1945, said: "The physician has a right to expect the dentist to recognize oral pathology whether it influences the teeth or not. The dentist possesses better instruments for thorough examination of the various structures of the mouth and, having gazed into more mouths than physicians, should be in a better position to distinguish the abnormal from the normal. We insist, therefore, that the dentist be an expert in the diagnosis of abnormalities not only of the teeth, but of the roof of the mouth, the tongue, the mucous membranes of the cheek, pharynx, tonsils, lymph nodes surrounding the mouth, their various ducts emptying into the mouth, and also the lips."

The American Association of Industrial Physicians and Surgeons, the American College of Surgeons,[1] the Council on Industrial Health of the American Medical Association, and other organizations, have approved standards for industrial health service. In these standards one finds no specific provisions for dentistry. This indicates that diagnosis and treatment of diseased mouth conditions is there by implication, is ignored, or is considered within the field of dentistry and therefore the responsibility of the dental profession. The last is probably true since the profession of dentistry has accepted this responsibility.

Patterning industrial dental standards after the excellent provisions of the "Essentials of an Industrial Health Service," published by the Council on Industrial Health of the American Medical Association; the Industrial Committee, Council on Dental Health of the American Dental Association,[2] prepared a definition of industrial dentistry and a statement of minimum dental services for plant industrial health programs as follows: *Industrial dentistry is that specialty in industrial health services that is concerned with the oral health of the industrial worker as it affects or is affected by his work and his working environment.*

"Minimum recommended services are:

1. Pre-placement and perodic oral examination and diagnosis of all employees.
2. Emergency treatment and the treatment of occupational accidents and illnesses affecting the oral tisues.
3. Treatment and elimination of oral sepsis.
4. Adequate recording of findings and recommendations.

Presented at the Annual Meeting of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS, Chicago, April 10, 1946.

5. Referral of the worker for further remedial and restorative care.

6. Dental health education."

These six requirements have a definite bearing on the worker's oral health as it may affect or be affected by his work and his working environment and, when properly integrated and correlated with the plant's medical activities, will contribute to a better understanding of the over all health status of the plant's working population. Proper integration and correlation of medical and dental services will be simple, too, for it can be seen that these six recommended services in their general content differ very little from the services recommended for industrial medical programs.

These six services may be considered a refinement of the "Essentials of an Industrial Dental Service" which were unanimously approved by the House of Delegates of the American Dental Association[3] in October, 1941, as follows:

1. The industrial establishment shall have an organized dental service, as further specified, with a competent staff including consultants and with adequate facilities to insure efficient care of all employees who need palliative emergency dental treatment because of occupational injuries or who have developed oral manifestations of occupational diseases.

2. The dental department shall urge all employees to obtain necessary dental treatment and shall devote a portion of its time to educating them in the value of maintaining oral health.

3. The industrial establishment shall require thorough mouth examinations of all persons entering employment. There shall be a system of complete and accurate records, filed in an accessible manner and available to the employee, to medical and dental services, and to government agencies for identification purposes. In setting up the records to be maintained, the division of dental hygiene of the State department of health should be consulted in order that a uniform system of dental records may be developed and that will make possible valuable statistical analyses and comparisons.

4. Membership on the dental staff shall be restricted to dentists who are (a) in good standing with the local dental society, and (b) qualified in such fields as may be included within the service.

5. The dental department shall have complete responsibility for the dental personnel as to the quality of service rendered.

6. Industrial dentists should be familiar with the industrial processes and watch closely for evidence of oral disease caused by such poisons as mercury, lead, phosphorus, fluorine, acids and radioactive materials, and other chemical or physical hazards. Immediately on noting any oral evidence of occupational disease, other units in the industrial establishment, such as the medical department or safety engineering department, should be notified, to the end that cooperative study and action may be undertaken.

7. The industrial dental service shall limit itself to the services specifically mentioned above. X-ray and prophylactic services in newly established industrial dental programs, however, and all details (not included in paragraphs one through six) of services in operation at the time of the adoption of those rules shall require merely the approval of the State dental society.

In applying the thoughts expressed both in these essentials of an industrial dental service and the six more recently recommended dental services, it should be remembered that industrial health is concerned with the complete health and physical condition of the employee. The physical examination is so arranged that pathologic changes in the various organs, parts of the body, and physiological systems are considered and listed as entities on the medical record forms. The total health status of the individual is then considered in the relationship that individual abnormal findings affect the whole body. However, it does seem that the tissues of the mouth deserve a better diagnosis than the "good," "fair," or "poor," "teeth and gums" that one usually sees listed on the employee's medical record form.

The oral examination should be made by a dentist or by a physician as highly skilled in the interpretation of abnormal mouth conditions as a dentist. Too little is known statistically of the effect of diseased oral conditions on the worker's general health, efficiency, and attendance; this lack of more complete information may be traced to poor diagnosis and recording by the physician or dentist.

To determine the dental relations in an industrial health service, it is necessary to state more specifically the scope of each of the recommended dental services as well as the manner in which each service operates to complement and supplement the corresponding industrial health service. The number of employees in a given plant, the type of work and the materials processed also have a bearing on the scope of dental services that are included in the industrial health program. We, therefore, should consider first each of the recommended dental services in its relationship to an industrial medical program and next, the dental services that might be included in modified versions of an industrial medical service.

The six recommended dental services can be applied in any type of industry, large or small, but the successful application depends in a great measure on the qualifications of the dentist who is responsible for the operation of the program. In addition to his educational qualifications attested by a license to practice dentistry, he should be well informed in several matters that are essential when industrial groups are considered. Some of these may be listed:

1. *Administration*—He should be capable of setting up the necessary dental office facilities and organizing a dental program that fits conditions in the plant and in the industrial health service of which his program is a part. He should be capable of organizing and administering the activities of the personnel who are under his direction.

2. *Occupational Hazards*—He should become familiar with the processing operations in the plant, the job activities, and the etiology and control of the potential toxic and other occupational hazards to which individual workers are exposed. He should be able to recognize the oral manifestations of occupational disease as well as the primary or secondary lesions of any type of oral pathosis.[4]

3. *Compensation Laws*—He should be familiar with the compensation laws of the State in which he is located.

4. *Oralogy*—He should be able to integrate his work and findings with those of the medical services of which his program is a part and so develop dental record forms that the information will supplement the medical findings and provide statistical data for plant health evaluation.

5. *Oral Surgery*—He should be skilled in exodontia, minor oral surgery, and fracture techniques.

6. *Roentgenology*—He should be skilled in roentgenologic techniques and interpretation.

7. *Education and Public Relations*—He should have knowledge of educational techniques both for the individual and for groups. He should believe that the successful operation of the dental aspects of industrial health services depends not on isolationism but on the cooperative efforts of all.

You may ask where can such a paragon be found. It is true that dentists thus qualified are not readily available, but the opportunity for training in short, postgraduate courses in industrial dentistry soon to be given at dental colleges and schools of public health will help to develop these qualifications. This formal training together with the in-service training that the dentist can receive on the job, will develop the proper potentialities in the man who wishes to make industrial dentistry a career.

Dental Unit Facilities

GIVEN such a man, the first step toward establishing a dental program is the selecting of a location for the dental unit and furnishing it with equipment and supplies. The equipment is standard—chair; unit; cabinets, and instruments; x-ray unit and dark room; sterilizer; lavatory facilities; office desk and furniture; and record files.

The dental offices should be situated within the medical quarters or as near thereto as possible in order that patients and records can be as easily routed to the dental unit as to any other of the services.

Personnel

THE dental unit personnel should include as a minimum the dentist, a dental assistant, and clerical help. The dental assistant can be trained to take and process X-rays, complete records, assist the dentist at the chair, and "clean up" between patients. If a dental hygienist is employed, she will be qualified to clean teeth and can assist in oral examinations and dental health education.

Dental Unit Services

THE dentist should familiarize himself first with the materials used in the plant and the methods of processing. The workers will fall into job categories according to the type of work on which they are engaged. The personnel department and the medical department probably have this information readily available. A daily consultation with the medical officer will help in the initial orientation.

Examination and Diagnoses

PRE-PLACEMENT—This examination, made at the time of the pre-placement physical examination, is a beginning record or base-line of the new employee's oral status and affords an opportunity for medical and dental cooperation in the estimation of the employee's general health status. The examination should include a careful clinical diagnosis using a mouth mirror and sharp explorers, trans-illumination of the anterior mouth areas, and full mouth x-rays. Oral lesions, sore gums, or infected teeth may be an indication of systemic complications and suggest further laboratory tests before final employment.

If necessary, arrangements can be made for the applicant to visit a dentist of his own selection. If diseased oral conditions are corrected at this time, the new employee enters his job with a clean and healthy mouth. Thus, oral pathosis will have little opportunity of becoming a contributing factor in future illness, causing inefficiency, material spoilage, and absenteeism.

Periodic—These examinations should be made at regular intervals suc has are specified by the medical departments for periodic physical examinations. More frequent oral examinations should be made of employees who are engaged in certain types of work where the materials used may adversely affect the oral tissues. The permissible exposure limits to certain chemicals usually are set up to preclude systemic poisoning. Acid exposure limits, for example, can reach concentrations which will not affect the worker's general health but which will cause dissolution of tooth enamel. Investigation of other toxic hazards may reveal that the tissues of the oral cavity are vulnerable to other accepted permissible exposure limits, and the resultant tissue breakdown in the mouth, if unchecked, may result in more serious conditions affecting the general health.

At the time of this examination an opportunity is afforded the medical and dental services to consult on the health status of "repeaters" who are responsible for the greatest percentage of clinic visits. In one industrial health program, this type of cooperation through physician-dentist consultation has resulted in changing chronic visitors to the medical clinic to employees who are an asset and not a liability in the plant economic structure.

The periodic recording of employee oral health status not only furnishes an opportunity for program evaluation, but it makes available concurrent medical and dental data. From this information, it may be possible to associate the effect of neglected oral disease with incipient systemic conditions. Conversely, the early discovery and eradication of diseased oral conditions may cause a reduction in the normally expected appearance of medical ailments.

Emergency Treatment

EMERGENCY treatment service in the medical department cares for acute ailments such as headaches, cuts, bruises, and burns, and first aid for more serious injuries and illnesses. In a like manner, toothaches and painful oral lesions receive palliative treatment in the dental unit's emergency service. Occupational illnesses such as sore gums from heavy metal exposures may be forestalled by prophylaxis and a regime of good oral hygiene. Some fillings may be necessary as in the case of workers exposed to white or yellow phosphorus for whom there must be assurance that all open cavities are filled and that there is no gingivitis. Traumatic injuries to the mouth, teeth, and jaws should be cared for or made comfortable until reparative service is available.

Treatment and Elimination of Oral Sepsis

IT MAY be said that the objective of an industrial health service is to raise the level of the plant employee's health by minimizing or eliminating causes that operate to lower his health and physical efficiency. This, too, is the objective of the industrial dental unit and to that end one of the most important services recommended is the treatment and elimination of oral sepsis. According to Thomas,[5] "practically all adults have mouth infection. . . . Chronic infection of the mouth seldom causes pain or discomfort and therefore progresses unsuspected. . . . One small region of mouth infection, so small that it is likely to be ignored, may be many times more dangerous than a much larger region of infection elsewhere in the mouth. . . . For example, we may find a serious eye infection showing no improvement following the removal of a pulpless, so-called 'dead' tooth, including a large amount of the adjacent diseased bone, whereas this same eye infection may begin to show improvement in two hours

and clear up completely in a few days following the subsequent removal of another pulpless tooth that 'shows nothing wrong around it in the x-ray'. . . . Constant absorption of infection from teeth and mouth, causes a gradual loss of physiologic function of vital organs and other essential tissues through degeneration. . . . An employee may be half sick and yet not aware of it. . . . Of far more serious import than production losses from absenteeism due to illness, are the production losses due to the fact that a large proportion of employees on the job are actually 'sick' and are thus working at greatly lessened efficiency. Such workers are a safety hazard to their fellow employees as well as themselves."[5]

It should be the responsibility of the dental unit to work toward the elimination of oral sepsis in the mouths of all employees.

If the worker will not secure these services for himself through outside sources, the dental unit should be prepared to treat and eliminate oral sepsis in the plant dental office.

Adequate Recording

THE importance of maintaining proper records cannot be too fully stressed. Complete medical recording of the physical status of employees through the years and the analysis of the data accumulated has increased the knowledge of industrial accidents and illnesses, improved preventive techniques, and proved the value of industrial health services. The medical record forms have not been adequate in the recording of occupational and non-occupational oral disease. In many plants where dental programs have been operating, too often the dental record forms are merely charts for diseased teeth found, teeth extracted, and fillings placed.

There should be a closer correlation between medical and dental findings, diagnoses, recommendations, and treatments than usually exists at the present time. The Health and Safety Department of the Tennessee Valley Authority at their Health Center, Chemical Plant II, Wilson Dam, Alabama, recently developed a dental record system which is a step toward the integration of medical and dental services. A complete clinical and x-ray oral examination with blood determinations when indicated, is recorded on appropriate record forms. All forms are enclosed in a heavy manila envelope on which is recorded the patient's name and the more stable portions of his "history." This envelope then becames a part of the individual's medical folder. If the patient for any reason is routed to the medical or dental unit for examination or treatment, his complete medical folder accompanies him, and both the physician and the dentist have a better opportunity to assay his general health status.

Referral for Further Care

NORMALLY, industrial dental services do not include the many operations which comprise so much of the activities in private dental practice, for usually these services are readily available outside the plant. Permanent remedial dental operations, such as fillings, crowns, bridges, and dentures, necessary for the restoration of function or for esthetic purposes, should not be services that are rendered by the dental unit. However, the dental unit should make every effort toward encouraging the employee to obtain complete dental service on his own responsibility. In this regard, one of the duties of the plant dentist may well be to make some arrangement with local dentists whereby employees, not having their own dentist, can secure dental appointments. A referral plan worked very well in a plant in one of the eastern states, where the program consisted of examination, diagnosis, emergency service, and referral for remedial care. The plant dentist contacted all the dental practitioners in the state as well as those in towns in other states where two or more employees had their homes. He sought and received cooperation on the conduct of an appointment service from over 400 dentists. These he classified as to their specialties, skills, and equipment for rendering all types of service. The employee desiring dental service was given the opportunity to visit his own dentist, make his own selection from the list, or have an appointment made for him by the plant dentist from the prepared list of dentists. A very large percentage of the appointments were kept, and many of the employees' mouths were placed in a healthful condition in the year that this program was in operation.

In another state the state health department, in cooperation with the state dental society, published a roster of dentists segregated according to geographical location. These lists of dentists were distributed to plants in the state, and the employees seeking dental service could consult the local list and make their own selection.

Other variations of these plans can be devised as a means of organizing a plant referral service.

Dental Health Education

THE usual educational techniques are employed and dental health material designed to fit the plant's health educational program should be prepared. However, in a service program such as has been outlined there is an opportunity to present the best in education techniques—personal instruction. The individual can be shown his own oral defects and given information on how they can be corrected and the mouth maintained in a healthful state. A hand mirror in the employee's hand with which he can see the disease in his mouth is better than a motion picture showing diseased conditions in the mouth of some other person.

It seems that it is human to be interested in the bad things that we possess and in the good things possessed by others. With a little practice the dentist will become adept in picturing the evils of a diseased mouth and blessings of a clean mouth, one free from pain and infection.

Modification of Industrial Dental Service

WE HAVE outlined the relations of a dental unit in a complete industrial health service of the type that usually functions in plants employing a minimum of one thousand workers, where the total expense of operating the health services is paid by management as a part of the plant's operating expenses. This type of program, by an increase of the unit's personnel and facilities, can be adjusted to an employee population numbering into the thousands.

What procedure should be followed when the number of employees falls below the point where it is economically sound to employ the full-time services of a dentist?

If we keep in mind the six services, essential to the conduct of an industrial dental service, we can make modifications in the application of these services which will suit the plant's industrial health program and the dentist who is selected to render part-time dental service.

An absolute minimum operation of a plant dental service is now being tried by one of the large industries in several of its plants. This program includes a yearly oral examination of the employees by a part-time dentist using portable equipment and his own instruments. Diagnosis and recording of the employee's oral status is followed by a personal discussion of his mouth condition, the advantages of securing regular and complete dental care, and the danger to his general health of continued oral sepsis. The employee knows that he will be rechecked in a year and, if the dentist's health talk is convincing, some dental care may result. The part-time local dentist making the examination is employed on an hourly basis. Four of the services previously recommended are partially fulfilled in this type of program—periodic examination, recording, referral, and education. All treatments are referred to outside dentists. Some of these treatment services could be included in the plant program by employing more of the dentist's time.

Somewhere between this minimum service and the service advised for a dental unit in a complete industrial health program, a dental program can be designed that will suit any individual plant's population and management's concept of employee health service.

Dental programs offering all types of dental service should be divided into two separate categories, the first to supply the industrial aspects of the program which are included in the six recommended services, and the second to take care of the remedial and restorative needs.

Industrial dental service should be considered as being limited to and including the same types of service that constitute industrial medicine.

References

1. BRISTOL, L. D., and PETERSON, C. M.: Industrial Health. *J.A.M.A.*, 125:16, August 19, 1944.
2. Industrial Committee, Council on Dental Health, American Dental Association: Proceedings of the Industrial Committee, Chicago, Illinois, February 17-18, 1944.
3. Committee on Economics, American Dental Association: Dental Service in Industry. *J.A.D.A.*, 29:2, February, 1942.
4. HEACOCK, L. D.: Dental Services, Chapter VI. Manual of Industrial Hygiene and Medical Services in War Industries. W. M. GAFAFER, Editor. Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service. W. B. Saunders Company, Philadelphia and London, 1943.
5. THOMAS, E. H.: Mouth Infection and Industrial Health. INDUSTRIAL MEDICINE, 13:11, November, 1944.

Bibliography

1. Metropolitan Life Insurance Company: Industrial Dental Health Service. Industrial Health Series No. 3.
2. HOOPER, H. A.: Dental Services in Industry. *Clinics*, 2:3. C. O. SAPPINGTON, Editor. J. B. Lippincott Company, Philadelphia, October, 1943, p. 703.
3. SCHOUR, I., and SARNAT, B. G.: Oral Manifestations of Occupational Origin. *J.A.M.A.*, 120:1197, 1942.
4. COMROE, B. I., COLLINS, L. H., and CRANE, M. P.: Internal Medicine in Dental Practice. Lea and Febiger, Philadelphia, 1942. Second edition.
5. MEAD, S. V.: Diseases of the Mouth. C. V. Mosby Company, St. Louis, 1942. Fifth edition.
6. THOMA, K. H.: Oral Diagnosis with Suggestions for Treatment. W. B. Saunders Company, Philadelphia and London, 1943. Second edition revised.
7. DUNNING, J. M., WALLS, R. M., and LEWIS, S. R.: Prevalence and Characteristics of Dental Service in Industry. *J.A.D.A.*, 28:492, 1941.
8. GOLDHORN, E.: Dental Infections and the Industrial Worker. *J.A.D.A.*, 29:118, 1942.
9. WALLS, R. M.: A Dental Program for Industry. *J.A.D.A.*, 29:1083, 1942.
10. WALLS, R. M.: The Scope and Program of Industrial Dental Health Service. Second Dist. Dent. Soc. State of New York, 29:175, 1943.
11. THOMAS, E. H.: Mouth Infection in Industrial Workers: a Serious Menace to General Health; Resultant Loss to War Production. *J.A.D.A.*, 30:1249, August, 1943.
12. MASSLER, M., and SCHOUR, I.: Atlas of the Mouth and Adjacent Parts in Health and Disease. Bureau of Public Relations and Council on Dental Health, American Dental Association, 222 East Superior Street, Chicago, Illinois.
13. HEACOCK, L. D.: The Place of Dentistry in Industrial Health Programs. INDUSTRIAL MEDICINE, 12:10, October, 1943.

Evaluation of Borderline Cardiovascular Abnormalities

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FREQUENTLY, in the course of a standard insurance, employment, or armed forces examination, one encounters minimal cardiovascular variations that present an immediate and sometimes puzzling problem in diagnosis and management. Where frank disease with its gross variation exists there is usually no problem, as the signs are clear cut and the management usually well defined.

It is in this borderline group of cases that the physician must exercise unusual care in order to avoid future difficulty for the patient and perhaps embarrassment for himself. Too much investigation and consultation concerning the patient's heart without a complete explanation to the patient may make him "heart conscious." The significance of terms like "functional heart disease," "murmurs," "leaky valves," etc., must be fully explained to the patient if they are used in his presence. Improper evaluation of findings may deprive the patient of insurance, or the position he is seeking, or may mean his rejection or discharge from the armed forces, and, in general, have a far-reaching effect on his future life and happiness. This latter fact was very vividly brought out by the writer's observations while attached to the cardiovascular section of a large army hospital. It was the custom to send pre-inductees with "possible heart disease" to this hospital for a 72-hour study to determine their fitness for service. Also men already in service were admitted for similar study to determine if true heart disease existed which would make them eligible for medical discharge. A great number of these individuals followed a distinct pattern—they carried documents from physicians and from their parents stating that they had rheumatic heart disease, type unspecified, that they had led a restricted life for years and they usually had a systolic apical murmur. The majority of these cases had a history extending from 10 to 15 years. In only 10% of these cases was a diagnosis of organic heart disease substantiated after careful study.

It seems only reasonable to assume that in these cases with a 10 or 15 year history the clinical signs would no longer be borderline if heart disease existed over this period.

The unfortunate part of this situation was that in a substantial number of the men in whom no heart disease was found they had developed a moderate or severe neurosis owing to their restricted lives and the protective attitudes of their parents. While they had no need of a cardiologist, they did require aid from a psychiatrist.

At the outset it would be timely to quote from a recent excellent paper by W. A. Sodeman,[1] "It is a greater error to make the diagnosis of organic heart disease in a person with a normal heart than it is to make the diagnosis of a normal heart in a person with a minimal lesion without any other cardiac findings." This is a statement with which the majority of us will agree.

Relative to the hazard of undiagnosed minimal lesions the following data should be of interest. Helpern and Rabson[2] report the autopsy findings on 912 cases of sudden and unexpected natural cardiac death as follows:

Presented at the Annual Convention of the Medical Department of E. I. du Pont de Nemours & Co., Wilmington, Delaware, October 17, 1946.

Coronary artery disease	67.7%
Syphiletic aortitis	11.7%
Valvular disease	9.2%
Cardiac hypertrophy	3.8%
Spontaneous rupture of aorta	2.7%
All others	4.9%

These data were not broken down beyond the above table. We are all aware of our regrettable inability to anticipate coronary deaths and, on analyzing this table, we may conclude that very few of the deaths were of the type that showed only a debatable minimal lesion on clinical examination.

To delve further into the subject of minimal organic lesions; an analysis of the examinations of 45,000 flying cadets published by Delaney[3] and his associates tends to show the type of borderline organic lesion most frequently missed. All these cadets were supposedly in good health and had previously had from one to 12 examinations. Of these 45,000 cadets, 100 were found to have valvular heart disease as follows:

Aortic insufficiency alone	39
Mitral stenosis and insufficiency	34
Mitral insufficiency alone	10
Aortic insufficiency with mitral stenosis and insufficiency	5
Aortic stenosis and insufficiency	4
Mitral stenosis alone	4
Aortic and mitral insufficiency	3
Aortic and mitral insufficiency and stenosis	1
	100

As this table shows, the most frequently missed lesion was aortic insufficiency.

In contrast to these statistics we will examine the report of a group of cardiologists—Levy, Stroud, White[4], who re-examined 4,994 men rejected by draft boards throughout the country because of cardiovascular disease; 4,994 studied; 863, or 17.3%, reclassified 1A; previous diagnosis not confirmed:

Percent of Rejection Diagnosis Reclassified 1A	
Rheumatic valvular disease	12.8
Hypertension	15.5
Tachycardia	18.5
Congenital heart disease	9.1
Cardiac hypertrophy	9.6
Rheumatic fever recent	30.8
Heart disease unspecified	18.7
Neurocirculatory asthenia	23.9
Arrhythmia	20.0
Cardiac neurosis	20.0
Coronary disease	20.0
Hyperthyroidism	7.7

A view of this and the previous table of missed lesions would indicate that when the average physician is confronted with a highly debatable diagnosis he tends to favor the existence of disease rather than call the condition normal.

Environment

Too much emphasis cannot be placed on the importance of the proper environment for examination. The room should be quiet, otherwise the examination will be difficult and important sound variations may escape detection. Proper room temperature should be maintained. If a patient disrobes in a cold room the cold may exert a pressor effect on his blood pressure and also induce a bradycardia. On the other hand, an overheated, stuffy room is bound to affect the patient, especially the neurotic individual with an unstable vasomotor system.

Disorders of Rate

Tachycardia. Perhaps the most frequent cardiac variation that one must evaluate in a routine examination is the significance of a pulse rate above 100.

A frequently overlooked cause of tachycardia is a slight elevation of temperature due to coryza, recent immunizations or other infections of which the patient is unaware. In practice it is often found that a one degree elevation of temperature will cause a pulse increase well above the 10 points accepted as standard.

A great number of individuals will have an increased rate due to nervousness and fear. The functional nature of this tachycardia is usually readily apparent by the presence of other signs of nervous instability such as excessive sweating, exaggerated tendon reflexes and marked fluctuations in systolic blood pressure.

Simple vagal stimulation performed in the following manner is an aid in reducing the rate in these individuals in order to facilitate examination and also to give a clue as to the nature of their tachycardia. The patient is asked to take a deep inspiration—hold it and then bend forward at the waist to almost an angle of 90°. There is usually an abrupt slowing of the pulse as long as this position is maintained and the inspiration held. In a small group of individuals this maneuver fails. They are usually of the stolid type and their rate ordinarily diminishes on reassurance and rest. This test works best in the vagotonic type of individual who usually gives a history of other forms of functional instability such as a spastic colon—pyloro-spasm, etc. It was found that this posture test had little or no effect in thyrotoxicosis, febrile illness or other organic ailments responsible for the tachycardia. Other common causes of tachycardia are excessive indulgence in coffee, tea or tobacco prior to examination. The presence of anemia will explain a few cases of rapid pulse rates. Finally paroxysmal auricular tachycardia is usually readily identified by its regularity, excessive rapid rate and its usual failure to change with a short period of rest, reassurance or mild vagal stimulation and its frequent dramatic cessation with more pronounced vagal stimulation. In persistent puzzling cases of tachycardia added information may be gained by giving a mild hypnotic and having the nurse check the pulse rate at varying intervals during the night. In a very small number of cases malingerers will be found using thyroid substance, benzedrine, atropine or similar agents to maintain a tachycardia.

Bradycardia

When one encounters a pulse rate below 50 heart-block is naturally thought of. In a normal heart the rate will increase on moderate exercise while in true heart-block the rate shows little change. One must remember that a cold examining room may induce bradycardia. Excessively slow rates are also found following influenza and mumps and in the various grades of jaundice. Also in any disease causing increased cerebral pressure.

Disorders of Rhythm

Sinus arrhythmia is frequently noted by the examiner but seldom by the patient unless it is pronounced. The rate slows on expiration and increases in inspiration. This arrhythmia usually disappears on exercise and is of no clinical significance.

Premature auricular or ventricular contractions are frequently encountered. In certain cases where they occur in rapid succession it is difficult to distinguish this relatively benign condition from auricular fibrillation which is of course of much greater import. The usual effect of exercise in premature contractions is to abolish them while exercise tends to increase the

irregularity in auricular fibrillation. One must be on guard for certain variations in the effect of exercise on some patients with premature contractions. In some persons, exercise induces a return to normal rhythm for only a very brief period and if the patient is not examined immediately after exercise the extra systoles will reappear and the examiner will be unaware of their momentary disappearance.

There is another small group in which strenuous exercise or work will produce extra systoles. These require very close observation, as the extra systoles persist for only a short time after effort and if the examiner is not aware of this fact he will miss these premature contractions and their significance. As noted by Levine[5] and others, this form of extra systole is extremely important as if the effort is continued they may lead to ventricular tachycardia and perhaps ventricular fibrillation and death. A specific example of this syndrome is described in the following case history. A 23 year old colored soldier was seen in the cardiac clinic with a history of severe palpitation, vertigo, weakness and chest pain following severe effort. He stated that he could drill or perform routine duties without difficulty but when he was asked to do double time or perform tasks such as digging a slit trench he had to stop because of the previously noted symptoms. This was borne out by tests in the hospital and clinic. The patient could perform the usual tests without change, but if the exercise was prolonged he invariably developed showers of premature contractions with the accompanying symptoms previously described. On admission to the hospital and following complete and prolonged study no other cardiovascular abnormality could be found. In spite of this he was recommended for medical discharge.

Blood Pressure

IT WOULD be timely to review briefly the recommendations of the American Heart Association[6] for the standardization of blood pressure readings.

1. *Apparatus*—Mercurial preferred.
2. *Position*—Sitting with the arm slightly flexed and the whole forearm supported at heart level.
3. *Application of cuff*—the cuff with a 12 to 13 cm. bag should be applied snugly with the lower edge one inch above the antecubital space.
4. *Palpatory and auscultatory levels should be taken*, and, if the palpatory is higher, it should be taken as the systolic pressure.
5. *Diastolic pressure*—the point at which the sounds suddenly become dull and muffled should be known as the diastolic pressure. If there is a difference between that point and the level at which the sounds completely disappear the committee also recommends that this reading be regarded also as the diastolic pressure and recorded in the following manner: 140/80-70, etc.

There is some variation of opinion as to what must be considered normal levels of blood pressure. The army sets the figure at 150/90 while most insurance companies insist on 140/90. Master[7] and his associates recently reported an analysis of the blood pressures of a mixed group of 15,000 individuals 40 years of age and over. One of his conclusions was that 41% of the male population and 51% of the female population over 40 years of age had blood pressures of 150/90 or over and that these figures increased with each decade. He contends that normal blood pressure limits should be raised for these age groups.

Amsterdam[8] reports the interesting variations in blood pressure between arms and points out that both arms should be used and the right arm taken as the standard. In 1,000 normal individuals 70% showed the right to be higher than the left arm and in 44.6% of this group the variation was between ten and thirty millimeters. In only 6.4% of these 1,000 cases was the left pressure higher than the right.

Of further interest is the report by Stein[9] of the effect of change of position of the arm on blood pressure. He reports on the pressure changes in 71 young individuals with normal pressure as follows:

	Systolic	Diastolic
Arm at side	132	77
Arm hyperabducted	117	76

Experiments in our own clinic tended to bear out this finding and as Stein suggests a neutral position with the arm 45 to 90° from the body is the optimum position for taking the blood pressure.

We should all be aware of the effect of exercise on the blood pressure, and an adequate rest period is necessary when the patient has recently climbed stairs or hurried to the scene of examination. The effect of coffee and other stimulants should be kept in mind. Tobacco has a marked effect on the blood pressure of some individuals. A specific example of this was the 60 year old colonel who was the commander of our Military Hospital. He could walk into the clinic, sit down, and have his blood pressure taken. It would never be over 140/90. Then he would smoke one cigarette and in five minutes we would re-check his blood pressure and it would invariably be 190 to 200 with the diastolic level unchanged.

A fair guide as to the psychic nature of an elevated systolic pressure is its relation to the pulse rate. These moderate psychic systolic elevations are accompanied by a tachycardia. If one finds for example a systolic pressure of 170 and a pulse of 70 he should be inclined to delve further into the cause of the elevated pressure.

Hypotension

THE army sets no definite limits on hypotension itself, except in relation to orthostatic changes, as outlined by Crampton. Their standards are that a man should be rejected if, after standing three minutes, a previous normal recumbent blood pressure drops to below 90 systolic and 60 diastolic or a normal recumbent pulse is elevated to 120. This is further qualified by the statement that these findings are not cause for rejection if the individual has recently recovered from an illness, an operation or exhausted state.

Another blood pressure variation that may be an aid to the examiner is the significance of a low pulse pressure in certain cases. An example of this is the following case history. A 32 year old white soldier was admitted for observation with the following history.

Twice during the past 10 days he had fainted—the first time while running for a bus and the second time while doing double time. Examination disclosed only a grade I systolic murmur heard equally well over the pulmonic and aortic areas—little affected by mild exercise with no thrill or other evidence of abnormality. However, the blood pressure was consistently 100/90. Fluoroscopic examination disclosed well calcified aortic valves and the man was given a military discharge with the diagnosis of aortic stenosis.

Cardiac Murmurs

PERHAPS the most preplexing problem that one must face in examining a large number of applicants in a short period is the proper evaluation of the borderline cardiac murmur. Not only will there often be a

decided difference of opinion among physicians about the clinical significance of the same murmur, but also a fair number of borderline cases opinion will differ as to the timing of the murmur.

At the outset of this phase of the discussion we can eliminate the frank diastolic murmur, as there is no difference of opinion as to its significance. However, we might remember Cabot's[10] report, published in 1903, of three cases of intense anemia in whom a diagnosis of aortic regurgitation had been made because of diastolic murmurs in the fourth left interspace. At autopsy all the heart valves were sound and the murmurs were unexplained; with the better treatment of anemia today similar cases are less likely to be encountered.

Military regulations state that any important murmur is cause for rejection and does not specifically state what is considered an important murmur.

In our military clinic we largely used Levine's[11] classification and also his recommendations in evaluating the systolic murmur. He groups systolic murmurs into six gradations. Grade one is the faintest that is audible after careful auscultation. Grade six is the loudest that one ever hears. The other four gradations fall between these two extremes. Levine feels that, in the absence of fever, anemia, tachycardia, hypertension, hyperthyroidism, and possibly nervous excitement and systolic murmur of more than grade one intensity is likely to be due to organic heart disease.

Levine places a lot of emphasis on the increase in the velocity of the blood flow as the cause of the appearance of many systolic murmurs, and warns of the common practice of drawing certain inferences concerning the appearance of a systolic murmur after exercise. However, he does state that exercise is of decided value in uncovering mitral diastolic or presystolic murmurs. Levine is also very emphatic in stating that too much emphasis has been placed on the transmission of murmurs in attempting to differentiate between the functional and organic. He feels that the transmission depends on the original intensity of the murmurs and questions the importance of their transmission through the blood stream but feels they are transmitted through all tissue especially bone.

Concerning the audibility of murmurs Lewis[12] points out that the audibility depends entirely on the proximity of the stethoscope chest piece to the origin of the murmur and brings out that the oft-repeated phrase that if a murmur disappears during inspiration it is innocent, is unsafe and unsound. The inspiration simply moves the chest piece further away from the murmur source and causes it to disappear or diminish in intensity.

Sodeman[1] in his previously quoted paper brings out some interesting insurance statistics concerning the systolic murmur.

In persons with an inconstant apical systolic murmur not transmitted, life expectancy as a group was decreased, showing an extra mortality of 35%. With a constant murmur it was decreased with an extra mortality of 56%. For systolic murmurs in the pulmonic area the decrease in life expectancy showed only an extra mortality of 12%. This tends to confirm the general opinion that the majority of pulmonic systolic murmurs are unimportant, while in any group of borderline apical murmurs a fair proportion of organic disease will be present.

One must not forget to bring out that in cardiac examination both the bell and the flat type diaphragm chest pieces should be used. The bell will bring out the low pitched murmurs and the diaphragm the high pitched.

Under certain conditions, especially in tachycardia, and with very obese individuals with diminished heart sounds and no visible or palpable apical or carotid pulsations it is difficult properly to time a murmur. The American Heart Association and several authors advise that one begin his auscultation at the base, where it is usually easy to identify the first and second heart sounds. In short, a murmur is systolic if it occurs between the beginning of the first and second sound and is diastolic if it occurs in the longer pause between the second sound and succeeding first sound. The stethoscope is moved slowly from the base to apex without lifting it from the chest and an attempt is made to determine with which sound phase the murmur merges.

Leaman, in his textbook, points out a method first used by Riesman[13] in timing apical murmurs in cases with obscure sounds but in whom an apical impulse is palpable. The flexed index finger is placed over the impulse and a flat type chest piece of the stethoscope is placed above the second joint. It is found that the murmur is well transmitted through the finger and the murmur may be timed with the rise or fall of the finger.

Another method which the writer has found of value in timing murmurs in people with obscure heart sounds, tachycardia and absent apical impulses is by use of the differential stethoscope—a scope with two chest pieces. I thought this was an original development until I saw such a scope listed in Stedman's

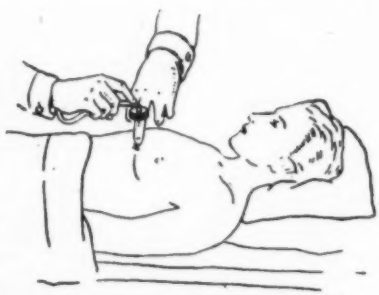


Fig. 1.
Transdigital auscultation described by Riesman, reproduced from Leaman's textbook.

Fig. 2.
Differential stethoscope

Medical Dictionary. One chest piece of this scope is placed over the carotid vessels where the heart sounds can usually be picked up and the first and second sounds identified; the other chest piece is then placed over the area where the murmur is best heard and one is able to note with which sound the murmur merges.

Frequent use of this scope makes one more adept in its use and it will be found to be of decided aid in a limited number of cases.

Borderline Electrocardiograms

IN A DISCUSSION of this nature we would not ordinarily mention electrocardiograms. However, in the armed forces they are taken with such frequency that one is likely to encounter a considerable number of puzzling graphs. As an example of this I would like to show two electrocardiograms and their accompanying chest x-rays.

This first case is that of a 39 year old white male who complained of intermittent substernal distress of four years duration that followed emotional disturbances. His cardiogram showed a rather large Q_3 which as you know when it equals 25% of the largest QRS deflection in the absence of right axis deviation is sometimes the only residual of an old posterior coro-

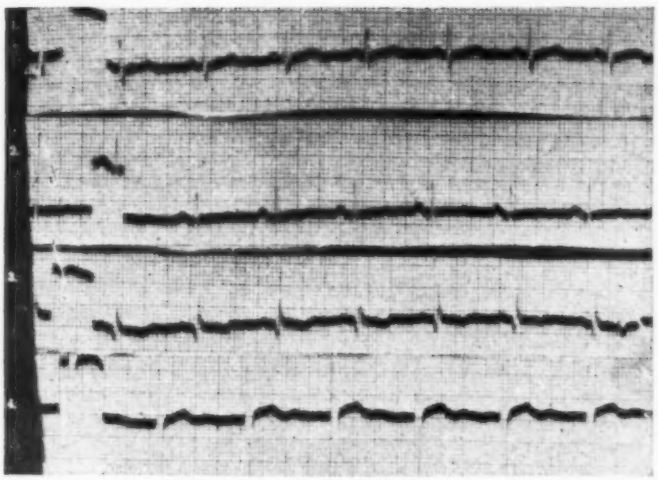


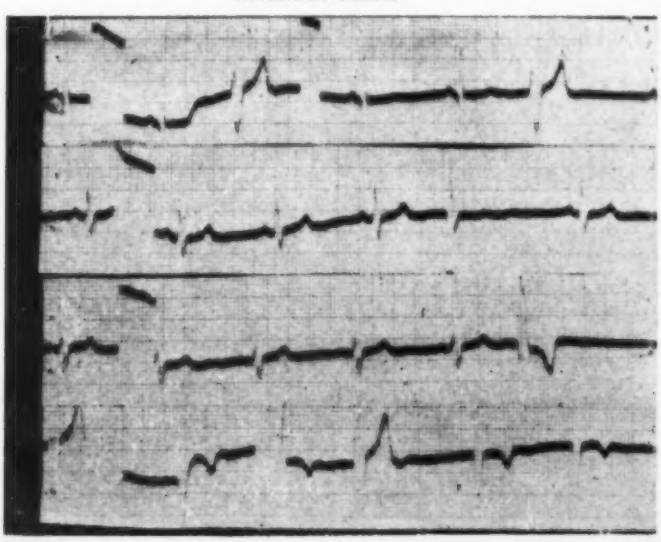
Fig. 3.
Funnell type chest with large Q_3 wave. No cardiac disease

nary infarction. However, his x-ray disclosed what the radiologist terms a funnel type of chest with the cardiac bulk towards the left. We found that this type was rather frequent and that they invariably showed large Q waves in the third lead. In this particular case exhaustive study failed to disclose organic disease and the distress of the patient was attributed to anxiety.

The second cardiogram and x-ray that I would like to present is that of a 27 year old male who while awaiting shipment to the Pacific developed severe substernal distress and was admitted to the hospital with the diagnosis of possible coronary thrombosis. His cardiogram, besides frequent ventricular extra systoles, showed a small Q_1 and Q_4 with a flattened T_1 and inverted T_4—we naturally thought of an anterior infarction. However, because of the clinical course of the man's illness, the continued absence of any abnormality in white count and sedimentation rate and the absolute lack of change in frequent serial cardiograms, we questioned our diagnosis of coronary disease. The man was temperature free and indulged in considable physical activity about the ward in spite of orders. This patient's x-ray of chest disclosed a congenital change which our x-ray man described as incomplete cardiac rotation. Our final conclusion on this case was that the man did not have coronary disease and that the variations in his cardiogram were a persistent juvenile pattern caused by the changed position of his heart to the thoracic wall. Our feeling was that his original distress was perhaps due to functional gastric cardiospasm. This man's subsequent course while he remained in camp bore out our impression that he did not have coronary disease.

As a final exhibit I would like to show two chest plates on an interesting case I recently saw in our New York Office. This 38 year old male walked into our office doubled up and complaining of severe crushing substernal pain of 15 minutes duration. His temperature was 98.4, his pulse 100, and he was cold and in moderate shock. During the hour that he was under observation his temperature rose to 99.8. An electrocardiogram was taken and disclosed no abnormality. (It would have probably been too early to show change if he did have acute coronary disease.) His x-ray shows a distended stomach and elevated diaphragm as compared to his previous chest plate taken during his annual examination. After being given an antispasmodic the patient felt greatly improved and was sent home. I saw him two days later and his recovery was complete. No doubt his condition was due

Fig. 4.
Partial congenital rotation of heart with flattened T_1 and inverted T_4 and frequent premature ventricular contractions. No cardiac disease



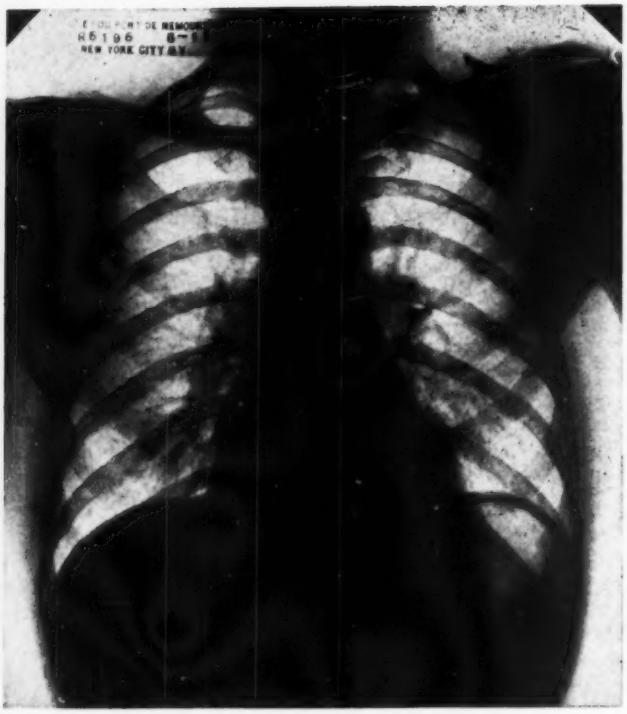


Fig. 5.
Distended stomach—Cardio-pylorospasm with symptoms of coronary disease. No heart disease. Compare with previous plate, same patient

to combined cardio- and pylorospasm. An interesting phase of this case was that two weeks previously the man who shared this patient's office had died suddenly of acute coronary disease.

Summary and Conclusion

VARIOUS factors concerned with the evaluation of borderline cardiovascular disorders have been outlined. Statistics and opinions of various authors and authorities on the subject have been reviewed. Some possible aids in judging the importance of these various minimal lesions have been presented along with x-rays and cardiograms of interest. In conclusion, we might say that while it should be the aim of every examiner properly to evaluate these borderline lesions; in highly doubtful cases with minimal debatable signs it would be to the best interests of the patient to consider his status as normal until definitely proved otherwise.

References

1. SODEMAN, W. A.: The Systolic Murmur. *Am. J. Medical Sciences*, July, 1944.
2. HELPERN, MILTON, and RABSON, S. MILTON: Sudden and Unexpected Natural Death. New York State *J. Med.*, June 1, 1945.
3. DELANEY, MILLER, KIMBRO and BISHOP: Valvular Heart Diseases. *J.A.M.A.*, December 4, 1943.
4. LEVY, STROUD and WHITE: Report of Re-examination of 4,994 Men Disqualified for General Military Service. *J.A.M.A.*, December 11, 1943.
5. LEVINE, SAUNDERS: Clinical Heart Disease. Philadelphia, third edition, page 345.
6. Standardization of Blood Pressure Readings. American Heart Association, 1939.
7. MASTER, MARKS and DACK: Hypertension in People Over 40. *J.A.M.A.*, April 17, 1943.
8. AMSTERDAM and AMSTERDAM: Disparity in Blood Pressures in Both Arms in Normals and Hypertensives. New York State *J. Med.*, December 1, 1943.
9. STEIN: Effect of Change of Position of the Arm upon Blood Pressure. *Am. Heart J.*, April, 1946.
10. CABOT and LOCKE: Johns Hopkins Bulletin. May, 1903.
11. LEVINE, SAUNDERS: Clinical Heart Disease. Philadelphia third edition, chapter 17.
12. LEWIS: The Recruits Heart. *Am. Heart. J.*, November, 1945.
13. RIESMAN: Some Remarks on Physical Diagnosis. *J.A.M.A.*, 9: 641-42, 1905.
14. Stedman's Medical Dictionary. Differential Stethoscope, Page 1053.

Minor Illness, Short Medical Absenteeism, Lateness and Separation in a Mail Order Firm

—The Firm as a Whole—

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THE tetrad of symptoms, (1) report to the medical department, (2) short medical absenteeism, (3) lateness, and (4) separation, is important industrially in that it increases production costs.* Short medical absence (one, two or three days) increases costs not only because the employee is paid while on sick leave and contributing nothing to production, but also because a temporary replacement rarely maintains the level of production expected from a permanently assigned employee. Similarly, the efficiency of production is impaired when an employee takes time to report to the medical department or is late. Separation is the costliest of these symptoms, because training a new employee is expensive. The sooner an employee is separated from the firm after being trained, the less is the return on the investment of his training. An organization that has a high turnover is thus more costly than a stable one.

Industry has been aware of this situation, but, on the whole, from an administrative standpoint. Contagion, safety, ventilation and various other phases of industrial hygiene have been studied in an attempt to improve the records of medical absences and reports to the medical department. Lateness has been treated with punitive measures such as loss of pay or discharge. Separation has been investigated mainly with a view to recording the reason for the action.

This tetrad of symptoms has previously been explored (1,2). Statistical data and case studies showed that it is influenced to a major degree by emotional disturbances. Additional data collected in a mail order firm, nine-tenths of whose staff are women, are being presented to illustrate further the results of such an analysis, and in addition to outline the methodology for use in other industrial situations, especially those in which records of this tetrad are available and, thus far, have served only a limited function.

In this report data on all employees of the firm are analyzed as a single group; future reports will deal with the differences between old and new employees, and between individual departments of the firm.

Methods

THE sample studied was the same as reported in two previous communications (1, 2), namely, the 24 largest departments of a mail order firm located in New York City. The average size of these departments varied from 10 to 60 employees, and these constituted more than 90% of those in the firm. Departments with less than 10 employees were excluded.

As previously, a tabulation was made of the incidence of: (A) reports to the medical department, (B) days of short (one, two or three day) medical absence, (C) unexcused lateness,** and (D) separation. The formulas used to calculate rates were as follows:

*Industry measures values in terms of costs, and in this report industrial behavior of employees is translated into these terms. However, it is the conviction of the authors that increased personal happiness in employees is the primary industrial mental health objective, and the lowering of production costs secondary.

**"Lateness" in this report refers to lateness that is unexcused by the firm.

$$\text{Rate A} = \frac{a}{NW\text{-}S}$$

$$\text{Rate B} = \frac{b}{NW\text{-}(S\text{-}b)}$$

$$\text{Rate C} = \frac{c}{NW\text{-}S}$$

$$\text{Rate D} = \frac{d}{N'}$$

for each period of time:

a—number of employee reports to the medical department.
b—number of employee days of short medical absence.
c—number of unexcused latenesses.
d—number of employees separated from the firm.
N—average number of employees in the firm.
N'—average number of employee months.
W—number of assigned working days.
S—total number of employee days of absence for any reason (short or long illness, family reasons, etc.)

TABLE II.
NUMBER OF REPORTS TO THE MEDICAL DEPARTMENT, DAYS OF SHORT MEDICAL ABSENCE AND LATENESS, PER 100 PERSON DAYS EXPOSED, JULY, 1944—DECEMBER, 1945

Month	Number of Employees	Report to the Medical Department	Days of Short Medical Absence	Latenes
July, 1944	571	6.40	2.64	4.14
August	586	8.64	2.78	3.09
September	576	8.31	1.77	3.93
October	533	9.02	2.50	3.95
November	553	7.16	2.66	4.90
December	592	9.42	3.12	5.65
January, 1945	589	9.61	4.11	5.36
February	567	10.85	3.02	4.87
March	569	8.34	2.18	3.88
April	570	6.82	2.15	3.19
May	569	7.59	2.21	2.39
June	557	5.79	1.40	2.65
July	556	5.81	1.72	2.59
August	588	6.43	1.60	2.50
September	645	4.90	1.48	2.91
October	691	5.58	1.69	3.38
November	730	5.85	2.05	3.90
December	753	8.09	3.45	5.19
Monthly Average Dec., 1944—Nov., 1945		7.19	2.29	3.62

The rates of (A), (B), and (C) were computed for quarters as well as for months. The quarters were chosen so as to be most homogeneous in regards to the weather in New York City. Thus, the Winter Quarter was chosen as December, January and February, and the Summer Quarter as June, July and August. An analysis on this basis seemed more meaningful for this type of investigation than the use of calendar quarters.

The period studied was from July, 1944, to December, 1945, inclusive. Yearly data were calculated for the 12-month period, December, 1944, to November, 1945.

Results

THE following data are presented:

I. The percentage of employees in the firm who each month have short medical absences and unexcused latenesses. (Table I, and Fig. 1.)

II. The average number of days of short medical absence each month per employee who is absent, and the average number of latenesses each month per employee who is late. (Table I.)

III. The monthly rates of reports to the medical department, short medical absence, and unexcused lateness. (Table II, and Fig. 2.)

IV. The quarterly rates of reports to the medical department short medical absence, and unexcused lateness. (Table III, and Fig. 3.)

V. The average monthly rates of separation. (Table IV.)

The percent of employees who have short medical absences, and the number of days each is absent: (Table I, and Fig. 1).

The percent of employees who have short medical absences is greatest in January, and least in August and September. The yearly (December, 1944-November, 1945) average of the percent of employees who have short medical absence each month is 27%. That is, each month of the year an average of 27 out of every 100, or more than one-fourth of the firm, are absent one or more days for short illness.

Employees absent for short illness during the winter and spring are absent 20% longer than those absent in the summer and fall (Table I).

TABLE I.
PREVALENCE OF SHORT MEDICAL ABSENCE AND LATENESS AMONG EMPLOYEES OF A MAIL ORDER FIRM, JULY, 1944—DECEMBER, 1945

Month	% of All Employees with Short Medical Absence	Average Number Days of Short Medical Absence per Employee Absent	% of All Employees Who Are Late	Average Number of Latenesses per Employee Late
July, 1944	*	*	28	2.5
August	*	*	27	2.2
September	19	1.7	28	2.4
October	31	1.7	30	2.3
November	30	1.8	33	2.9
December	40	1.9	41	2.6
January, 1945	46	1.9	38	2.8
February	33	1.7	31	2.7
March	27	1.7	26	3.1
April	27	1.6	25	2.6
May	26	1.8	20	2.7
June	19	1.4	22	2.2
July	21	1.5	21	2.2
August	18	1.6	22	2.0
September	18	1.4	23	2.1
October	24	1.4	30	2.3
November	26	1.6	37	2.0
December	31	1.9	38	2.2
Monthly Average Dec., 1944—Nov., 1945	27	1.6	28	2.4
Monthly Average Winter—Spring Dec., 1944—May, 1945	33	1.8	30	2.5
Monthly Average Summer—Fall June, 1945—Nov., 1945	21	1.5	26	2.1

*Date not available.

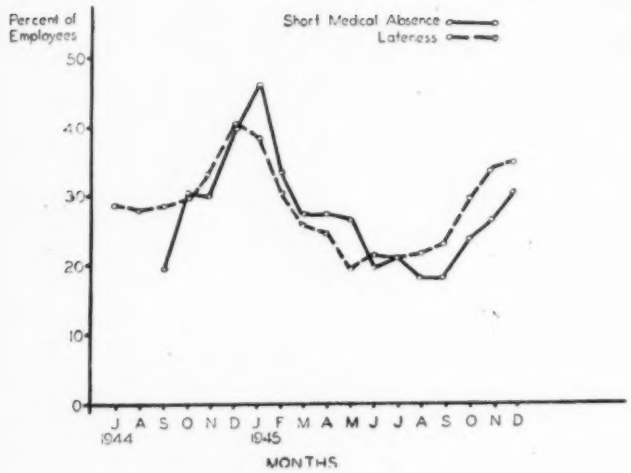

Fig. 1.
Percent of Employees Late and Percent with Short Medical Absence, July, 1944-December, 1945

The percent of employees who are late, and the number of times each is late: (Table I and Fig. 1.)

The percent of employees who are late is greatest in December, and least in May. The monthly average for the year (December, 1944-November, 1945) of the percent of employees who are late is 28%. That is, each month of the year an average of more than one-fourth of the employees in the firm are late one or more times.

Employees late in the winter and spring are late 33% more often than those late in the summer and fall (Table I).

A comparison of the percent of employees with short medical absences with the percent of employees with latenesses: (Table I and Fig. 1).

It will be seen that the peak of percent of employees who have short medical absences lags one month behind the peak of percent of employees who are late. This lag is evident for the low point as well as for the peak.

A comparison of the percent of employees with short medical absences with the percent of the employees late shows that in the winter and spring there are consistently more employees who have short medical absences than employees who are late, but that in the summer and fall there are more employees who are late than have short medical absences.

Monthly rates of report to the medical department, short medical absence and lateness: (Table II and Fig. 2).

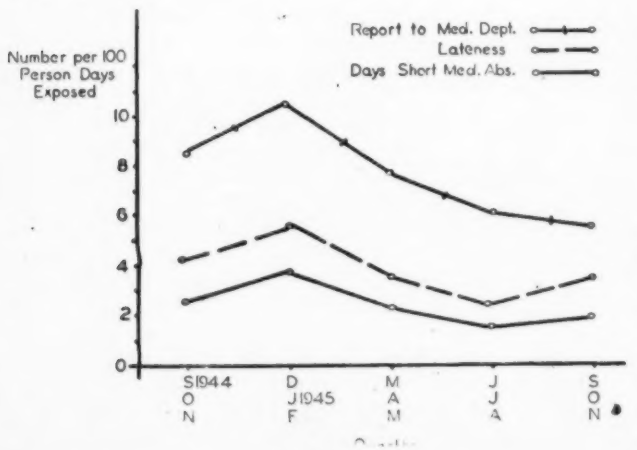

Fig. 3.
Number of Reports to the Medical Department, Latenesses and Days of Short Medical Absence, per 100 Person Days Exposed, by Quarters, September, 1944-November, 1945

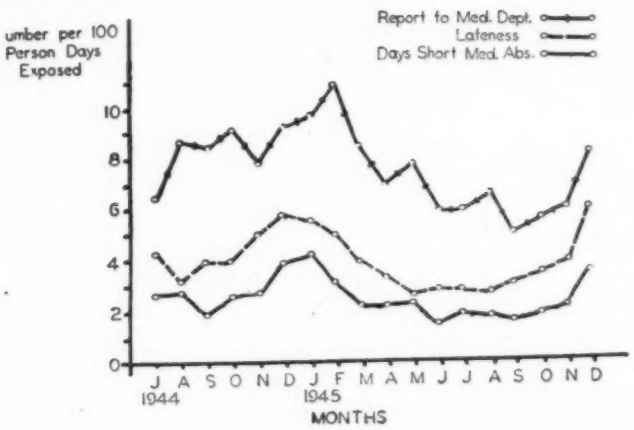

Fig. 2.
Number of Reports to the Medical Department, Latenesses and Days of Short Medical Absence, per 100 Person Days Exposed, July, 1944-December, 1945

Results similar to those above are obtained if these items are related to the number of person days exposed instead of percent of employees involved.

The average monthly rate of reports to the medical department for the year December, 1944-November, 1945, is 7.19 per 100 person days on the job, that is, for every 100 days worked, the average employee reports to the medical department 7.19 times. The peak is in February, falling to a low in September, 1945. In general, the rates in 1944 are higher than in 1945.

The average monthly rate of short medical absence for the year December, 1944-November, 1945, is 2.29 per 100 person days exposed, that is, for every 100 working days during which employees could be absent one to three days for minor illness, they are absent 2.29 days. The peak is in January, falling to a low point in June. Here too, the 1944 rates are slightly higher than those of 1945.

It should be noted that the peak and low points of short medical absences are not simultaneous with, but occur prior to, the peak and low points of report to the medical department.

TABLE III.

NUMBER OF REPORTS TO THE MEDICAL DEPARTMENT, DAYS OF SHORT MEDICAL ABSENCE AND LATENESS, PER 100 PERSON DAYS EXPOSED, BY QUARTERS, SEPTEMBER, 1944, TO NOVEMBER, 1945

Quarter	Report to Med. Dept.	Days of Short Med. Absence	Lateness
Sept., Oct., Nov., 1944	8.37	2.33	4.14
Dec., 1944; Jan., Feb., 1945	9.93	3.68	5.31
Mar., Apr., May	7.59	2.17	3.15
June, July, Aug.	6.01	1.57	2.57
Sept., Oct., Nov.	5.48	1.76	3.43

The average monthly rate of lateness for the year December, 1944-November, 1945, is 3.62 per 100 person days exposed. That is, for every 100 days that employees come to work, they are late 3.62 times. The peak is in December, 1944, falling to a low point in May, 1945. The 1944 rates of lateness are also higher than those of 1945.

The peak and low points of lateness occur prior to those of short medical absence, and thus also prior to those of reports to the medical department.

Quarterly rates of report to the medical department, short medical absence and lateness: (Table III and Fig. 3).

The rates of report to the medical department, short medical absence and lateness are presented by quarters in order to illustrate seasonal trends more distinctly.

The rates all show a peak during the winter quarter (December, January and February), and a low point during the summer (June, July and August). The one exception is report to the medical department, which shows a drop from the summer to the fall of 1945. In all cases, the 1944 rates are slightly higher than the corresponding 1945 rates.

Monthly rates of separation: (Table IV).

In Table IV are shown the average monthly rates of separation for the four semi-annual periods (January-June, July-December) of 1944 and 1945. For every 100 employees on the payroll, an average of 4.05 were separated from the firm each month in 1944, and 3.70 each month in 1945.

TABLE IV.
AVERAGE MONTHLY SEPARATION RATES, OVER SEMI-ANNUAL AND ANNUAL PERIODS, PER 100 EMPLOYEE MONTHS EXPOSED

Time Period	Average Monthly Rates
Jan.—June, 1944	4.85
July—Dec., 1944	3.25
Jan.—June, 1945	2.84
July—Dec., 1945	4.56
Jan.—Dec., 1944	4.05
Jan.—Dec., 1945	3.70

Translated into yearly rates, in 1944 for every 100 employees on the payroll, 48.6 were separated from the firm, and in 1945, 44.4 were separated. In the two-year period studied, therefore, the number of employees who were separated from the firm was almost equal to the total number on the payroll.

Discussion

THE seasonal variations in short medical absence in the firm studied is similar to that in other firms. Gafafer[3] found a higher incidence of short medical absence in the first and last calendar quarter than in the second and third. Baetjer[4] reported on female employees.

What is of special significance in the findings reported here, is the fact that seasonal variations in the incidence of short medical absence are paralleled not only by the incidence of report to the medical department, but by the incidence of lateness as well. It is inferred that they all are affected by one or more common influences. One such influence is weather. In the winter, certain medical disorders are more common, and in addition employees must get up while it is still dark and cold, so they have a tendency to stay in bed as late as possible and are more frequently late.

Another influence is emotional and psychosomatic disturbances. It should be noted that the lag in the peaks and low points, of either the number of individuals involved in, or of the incidence of, lateness, short medical absence and report to the medical department is in the same order as these items are influenced by emotional disturbances and "poor" work attitudes.[2]

The cost to the firm of the tetrad of absenteeism and separation studied may be calculated from the above figures. On the basis of an eight hour day, an estimated average of 20 minutes lost for each lateness and 30 minutes for each report to the medical department, and on the basis of the cost of training a new employee being the equivalent of two weeks wages, 5% of all wages paid during the period studied, or $5 out of every $100, were found to bring no return in service because of the tetrad of report to the medical department, short medical absence, lateness and separation.

The importance of this tetrad becomes even more striking if it is remembered that, as shown previously,[1] employees who manifest these symptoms work less efficiently than do others in the firm. These increased production costs are thus to be measured not only in terms of the cost of absenteeism and separation, but in the cost of inefficiency as well.

It is obvious that all illness with the consequent absenteeism, and all lateness and separation can never be entirely eliminated. They can, however, be reduced to a minimum by improving the emotional disturbances and undesirable work attitudes that are responsible for a substantial number of absences, latenesses and separations.

Summary

A STUDY was made in a mail order firm staffed almost entirely by women, of the frequency of reports to the medical department, short medical absence, unexcused lateness and separation.

2. Each month, an average of 27% of the employees were absent one, two, or three days because of minor illness. This was highest in January (46%) and lowest in August and September (18%).

3. Each month an average of 28% of the employees were late one or more times. This was highest in December (41% and 38%) and lowest in May (20%).

4. From December, 1944, to November, 1945, for every 100 person working days there were:
(a) 7.19 reports to the medical department.
(b) 2.29 days of short medical absences.
(c) 3.62 latenesses.

5. There was a constant lag in the peaks and low points of lateness, short medical absence and report to the medical department, in that order.

6. During 1944 and 1945 approximately 4% of the employees were separated from the firm each month.

7. On the basis of these findings, it is estimated that about five dollars out of every 100 dollars spent for wages brought no industrial return because of time lost in reports to the medical department, short medical absence, lateness and the cost of training new personnel.

Bibliography

1. BRODMAN, KEEVE: Absenteeism, Working Efficiency and Emotional Maladjustments in Groups of Employees. INDUSTRIAL MEDICINE, 14, 1-5, January, 1945.

2. BRODMAN, KEEVE: Rates of Absenteeism and Turnover in Personnel in Relation to Employees' Work Attitudes. INDUSTRIAL MEDICINE, 14, 953-957, December, 1945.

3. GAFAFER, W. M.: Sickness Absenteeism Among Male and Female Industrial Workers During 1944 and First Quarter of 1945, with a Note on Absence Duration 1941 to 1944. Public Health Report, 60, 1043-1049, September 7, 1945.

4. BAETJER, ANNA M.: Women in Industry: Their Health and Efficiency. Philadelphia and London: W. B. Saunders Company, 1946.

Hydrofluoric Acid Burn

—Case Report—

AGNES N. FLACK, A.B., M.D.,
PAUL D. SCOFIELD, LITT. B., M.D., F.A.C.S.

PATIENT, H. H.; occupation, pipefitter; white; age 41; accident, March 30, 1946.

Patient states he was in Laboratory D, Room 18, taking out a vent pipe from a machine. While holding the bottom of the vent in the palm of his right hand some greenish dry powder sifted on the palm. About 10 minutes later he had a burning sensation in his right palm. He reported to the dispensary within 15 or 20 minutes.

When first seen there was a reddened semi-circular area involving the thenar eminence of the right hand curving medially to involve the palmar base of the index finger. The hand was immersed in ice-cold magnesium sulphate solution and dressed with special ointment. The patient did not complain of any pain.

From the Medical Service of Carbide and Carbon Chemicals Corporation, Oak Ridge, Tennessee.

At 8:00 A.M. the following day there was a semicircular blister present on the right palm, approximately four or five inches in length, the width varying from one-fourth to one inch. Patient complained of severe pain; was admitted and a debridement of the necrotic tissue was done immediately and the hand immersed in ice-cold magnesium sulphate continuously. Pain persisted after medication of P.A.C. II ,triple bromide, drams III, and codeine sulphate, grs. I, by hypo.

At 2:30 P.M., 10% calcium gluconate was injected subcutaneously and radially about the edges of the wound. Patient complained of severe pain during and immediately following the injection of the calcium gluconate, probably due to the distention of the tissues. He was given morphine gr. ¼, and needed no further sedation at any time, stating that all pain stopped within an hour after injection.

The following day the swelling had markedly abated; there was no pain and the wound was clean. Vaseline gauze dressing was applied and the patient was discharged from the infirmary. He was told to report to work the following day.

Daily dressings were done. Five days after injury there were three small beginning necrotic areas present in the scar with some tenderness and swelling of the thenar eminence but no acute pain. These superficial necrotic areas were excised without pain. There was some tenderness over palpably enlarged right axillary glands. Temperature 99°F.; magnesium sulphate soaks and paste were continued. Eight days after injury there was some tenderness over the thenar eminence only and some limitation of adduction of the thumb due to swelling. The initial lesion was healing and sensitive only to a moderate degree. The following, or ninth, day after injury, the last of the necrotic tissue was excised with a debridement of the old skin. Blood was withdrawn for use as a paste which was applied the same afternoon. The patient did not report until three days later at which time he had removed the dressing and applied one of his own. At this time there was a small unhealed lesion, with a slight amount of sero-sanguinous drainage, at the base of the palm; magnesium sulphate paste was again applied.

Fifteen days after injury the lesion was healed with the exception of one small area at the base of the palm. Routine dressings were done and 34 days after injury the patient was discharged with the wound healed. No pain, tenderness, limitation of motion of thumb or fingers and no scarring of the palm of the hand. Photographs were made and the case closed.

This case is one of a series of five, of hydrofluoric acid burns treated by the combination of:

1. Infiltration with calcium gluconate;
2. Iced magnesium sulphate soaks and paste;
3. Blood paste; and 4. Minimal surgery.

We believe that the immediate cessation of pain shortly after infiltration with calcium gluconate, and the prompt healing thereafter warrant routine use of this method in hydrofluoric acid burns.

Industrial Health Congress

—Abstracts of Proceedings of the Seventh Annual Congress on Industrial Health of the American Medical Association, Boston, September 30—October 2, 1946—

C. O. SAPPINGTON, M.D., DR. P.H.

NEW procedures, technics and policies developed in the field of industrial medicine during the war years were featured at the Seventh Annual Congress on Industrial Health, at the Hotel Copley Plaza, September 30-October 2. Nearly a thousand specialists in industrial health attended the three-day meeting.

The Congress was sponsored by the Massachusetts Medical Society, the Council of the New England State Medical Societies and the Council on Industrial Health of the American Medical Association. The program was arranged by DRS. CARL M. PETERSON and HAROLD R. HENNESSY, of the Council on Industrial Health.

A symposium on atomic energy was held Wednesday morning (October 2) with DR. FRANK H. KRUSEN, of the Mayo Clinic, presiding. Speakers and their subjects included: "Atomic Energy in Industry and the Physical Sciences" by SAMUEL K. ALLISON, PH.D., Director, Institute for Nuclear Studies, University of Chicago, Chicago; "Physiologic Effects of Nuclear Energy" by DR. WARREN SHIELDS, pathologist, New England Deaconess Hospital, Boston; and "Essential Safeguards in Production and Use of Atomic Energy," by DR. JOHN E. WIRTH, Knoxville, Tennessee.

The program opened Monday morning, September 30, with a conference on lead poisoning, BRIG. GEN. JAMES S. SIMMONS, Dean of the School of Public Health, Harvard University, Boston, presiding. Eight different speakers covered the subject which was summarized by DR. ROBERT A. KEHOE, University of Cincinnati College of Medicine.

An informal dinner and round table discussion was held Monday evening, September 30, for state medical society committees on industrial health, with DRS. CLARENCE D. SELBY, of Detroit, and DANIEL L. LYNCH, of Boston, presiding. JAY I. BOXER, executive director, Brooklyn Industrial Health Committee, spoke on the subject "Cooperation Pays in Brooklyn."

DR. HENRY C. MARBLE, of Boston, presided at the surgical conference on Monday afternoon. The problem of the injured foot was discussed by four Boston physicians: ROBERT J. JOPLIN, LELAND S. MCKITTRICK, JOSEPH S. BARR, FRANK S. OBER, and CLAY RAY MURRAY, professor of orthopedic surgery at Columbia University College of Physicians and Surgeons.

GOVERNOR MAURICE J. TOBIN of Massachusetts welcomed the delegates at the general session, which opened Tuesday, and DR. STANLEY J. SEEGER, Dallas, Texas, chairman of the Council on Industrial Health, presided. Among the subjects considered were new horizons in industrial health and welfare, conserving the health of management, experiments in small plant medical service, nutrition and capacity for work, industrial pulmonary and heart diseases and work capacity in industry.

DR. MORRIS FISHBEIN, Chicago, editor of the *Journal of the American Medical Association*, presided at the Wednesday afternoon symposium on fitness for work. He also spoke on "Essential Factors for Health and Fitness." Other speakers were COL. RICHARD H. EANES, chief medical officer, Selective Service System, Washington, D. C.; DR. DEAN F. SMILEY, consultant, Bureau of Health Education, American Medical Association, Chicago; DR. RUTH E. BOYNTON, director, Students' Health Service, University of Minnesota, Minneapolis; and DR. C. C. BURLINGAME, psychiatrist in chief, Institute of Living, Hartford, Conn.

Monday, September 30—Morning Session

FELIX WORMSER, in presenting his paper on "Facts and Fallacies of Lead Exposure," stated that, despite the large amounts of lead used in everyday life, public exposure to white lead in paint is negligible. He did not agree with the popular belief that eating paint from cribs and toys is a source of lead poisoning among children. Investigations cast grave doubts on nearly all of these

cases. This might be expected, because crib and toy manufacturers do not use lead paint in their products. Other paint pigments are cheaper and make a harder enamel than is obtainable with lead. Lead paint, because of its extraordinary durability, finds its chief application on exteriors, not on furniture. Hence, the risk to children from chewing painted surfaces on cribs and toys is nil so far as lead poisoning is concerned.

The largest single use of lead is by the storage battery industry, the second largest use is in cable sheathing of telephone and power cables, and the third largest use is in the manufacture of paint pigments such as white lead and red lead where there is a marked occupational exposure, but thanks to modern safety precautions, the incidence of occupational lead poisoning is low.

Based on investigations extending over a 20-year period, two conclusions were offered:

1. The lead hazard in industry and to the public is relatively small and can be effectively and easily controlled, when it cannot be eliminated entirely.

2. It is not difficult but it requires careful work to determine whether or not a person has been leaded and, if so, the cure is simple and generally permanent.

PROF. PHILIP DRINKER presented the subject "Public Exposure to Lead," stating that industrially the most important route is by way of the respiratory system, but in ordinary life we are more apt to take in lead through food or drink, than by other means.

Permissible lead intake was discussed, mentioning the standard for drinking water, 0.1 parts per million or 0.1 mg. per liter, which is applicable to all beverages. The only standard for foods is the U. S. government figure for lead in spray residues on fruit, which is 7.1 parts per million; it is important to realize that this standard is not applicable to all foods, as it is not sufficiently severe.

Apparently there is good reason to believe that the daily ingestion of about 0.5 mgs. of lead in food or drink and perhaps the intermittent ingestion of somewhat more is safe—but that daily ingestion of much more than 0.5 mgs. is apt to cause trouble.

The more important public exposures to lead were enumerated and discussed, including painting, ethyl gasoline, salvaging scrap, plumbing, and welding. With regard to painting, most outside paints may contain lead, as it is usually preferred, but inside paints need not be lead. Sandpapering old lead paint or burning off with a torch may present a significant exposure, especially in those who are at this type of work all the time—but in householders the exposure would be intermittent. Lead-painted toys are becoming rather rare (as well as furniture) in the United States and certainly poisoning from these sources is not common today.

With regard to ethyl gasoline, careful warning labels appear on all containers for this kind of motor fuel and on all pumps at filling stations; in general, the public follows the directions, showing that a fine job of education has been accomplished. Cases of serious lead poisoning have been noted, rather widely scattered, in connection with prolonged and careless use of ethyl gasoline for dry cleaning, apparently mostly in domestic quarters. During the war, military personnel of this and other countries used gasoline stoves for cooking and used ethyl gasoline; however careful inquiry has not established the occurrence of lead poisoning among military personnel under these conditions, despite certain reports.

In the salvaging of scrap and the use of battery casings for fuel, some lead has been in the air and has caused severe lead poisoning.

Serious lead poisoning risks have been removed from the occupation of plumbing in modern times, today's plumber being primarily a pipefitter, steamfitter, and a heating contractor, with very little contact with lead.

With respect to beverages, most of the serious consequences are largely in the past. Spraying apples presents a potential hazard in the use of lead arsenate, but most large orchards wash off excess spray residue.

Serious lead exposures have occurred in certain weld-

Monday, September 30

CONFERENCE on Lead Poisoning:

"Facts and Fallacies of Lead Exposure" —FELIX WORMSER, Secretary, Lead Industries Association, New York.

"Public Exposure to Lead"—PHILIP DRINKER, S.B., CH.E., Harvard School of Public Health.

"Occupational Exposure to Lead"—MAY R. MAYERS, M.D., Chief, Medical Unit, Division of Industrial Hygiene and Safety Standards, State of New York Department of Labor.

"Absorption and Fate of Lead in the Body" —JOSEPH C. AUB, M.D., Massachusetts General Hospital, Boston.

"Clinical Diagnosis" — DONALD HUNTER, M.D., Department of Research in Industrial Medicine, London Hospital, London; and WILLARD MACHLE, M.D., New York.

"Radiology in Diagnosis of Lead Poisoning"—JOHN CAFFEY, M.D., Presbyterian Hospital, New York.

"Analytic Methods in Diagnosis" — LAWRENCE T. FAIRHALL, Senior Scientist (R), Industrial Hygiene Division, U. S. Public Health Service, Washington, D. C.

Summary—ROBERT A. KEHOE, M.D., Kettering Laboratory of Applied Physiology, University of Cincinnati College of Medicine.

Surgical Conference

THE Problem of the Injured Foot: "Examination and Anatomy"—ROBERT J. JOFLIN, M.D., Boston.

"Diseases that Retard Healing of Feet"—LELAND S. MCKITTRICK, M.D., Boston.

"Fractures of the Foot"—JOSEPH S. BARR, M.D., Instructor in Orthopedic Surgery, Harvard Medical School, Visiting Orthopedic Surgeon, Massachusetts General Hospital, Boston.

"Fractures of the Ankle" — CLAY RAY MURRAY, M.D., Professor of Orthopedic Surgery, Columbia University College of Physicians and Surgeons, New York.

"Proper Shoes and Shoeing"—FRANK R. OBER, M.D., Professor of Orthopedic Surgery, Harvard University Medical School, Boston.

Tuesday, October 1

NEW Horizons in Industrial Health and Welfare," Moderator, WILLIAM A. SAWYER, M.D., Rochester, New York; REAR ADMIRAL JOEL T. BOONE, (MC) U.S.N., Coal Mines Administration, U. S. Department of the Interior, Washington, D. C.; ANDREW FLETCHER, President, Industrial Hygiene Foundation; and BORIS STERN, Chief Industrial Relations Branch, Bureau of Labor Statistics, U. S. Department of Labor.

Industrial Medical Administration

FITTING the Service to the Plant"—WILLIAM H. SEYMOUR, Vice-President, Liberty Mutual Insurance Company, Boston.

"Conserving the Health of Management"—EARL F. LUTZ, M.D., General Motors, Detroit.

"Recent Experiments in Small Plant Medical Service"—FENN E. POOLE, M.D., Lockheed Aircraft Corporation, Burbank, California; LEONARD S. ARLING, M.D., Director, The Northwest Industrial Clinic, Minneapolis; and NATHAN MILLMAN, M.D., Former Director, Office of Industrial Health, New York.

Industrial Physiology

RESPIRATORY and Circulatory Capacities in Normal Man"—D. B. DILL, PH.D., Professor of Industrial Physiology, Laboratory of Industrial Physiology, School of Business Administration, Harvard University.

"Nutrition and Capacity for Work"—ANCEL KEYS, PH.D., Director, Laboratory of Physiological Hygiene, University of Minnesota.

"Industrial Pulmonary Diseases and Capacity for Work"—GEORGE W. WRIGHT, M.D., The Edward L. Trudeau Foundation, Saranac Lake, New York.

"Heart Disease and Work Capacity in Industry"—PAUL DUDLEY WHITE, M.D., Massachusetts General Hospital.

Compensation and Rehabilitation

THE National Conference Committee on Workmen's Compensation—Its Plan and Accomplishments" — HON. T. A. WILSON, Chairman North Carolina Industrial Commission. Raleigh.

"National Employ the Physically Handicapped Week"—THOMAS MCKNEELEY, M.D., Chief Medical Officer, Office of Vocational Rehabilitation, Washington, D. C.

"Occupational Capacity Following Traumatic Injury" — GEORGE G. DEAVER, M.D., Physician in Charge, Division of Physical Medicine, New York University.

"Rehabilitation of the Amputee"—HENRY H. KESSLER, M.D., Consultant, Office of Vocational Rehabilitation, Newark, New Jersey.

Pan American Relations

TRAINING Program of the Institute of Inter-American Affairs"—W. W. PETER, M.D., DR.P.H., Director, Washington, D. C.

Wednesday, October 2

SYMPOSIUM on Therapeutic Highlights: Short Summaries of Current Knowledge on Common Industrial Medical Problems—Arranged with the Council on Pharmacy and Chemistry, A.M.A., TORALD SOLLMANN, M.D., and WILLARD MACHLE, M.D., Presiding.

"Air Disinfection in Industry"—ALEXANDER HOLLAENDER, PH.D., Senior Bio-Physicist, National Institute of Health, U. S. Public Health Service, Bethesda.

"The Control of Fungus Infections of the Feet in Industry"—LOUIS SCHWARTZ, M.D., Medical Director Chief, Office of Dermatology, U. S. Public Health Service, Bethesda.

"The Control of Heat and Fatigue in Industry"—WILLARD MACHLE, M.D., New York.

"The Place of Clinical Research in Industry" —WALTON VAN WINKLE, JR., M.D., Secretary, Therapeutic Trials Committee, Council on Pharmacy and Chemistry, A.M.A.

SYMPOSIUM on Fitness for Work:

"Essential Factors for Health and Fitness" —MORRIS FISHBEIN, M.D., Editor, *Journal of the American Medical Association*, Chicago.

"The Need for a Physical Fitness Campaign"—COL. RICHARD H. EANES, (MC), Chief Medical Officer, Selective Service System, Washington, D. C.

"Does American Education Produce Physically Fit Workers?"—DEAN F. SMILEY, M.D., Consultant, Bureau, Health Education, A.M.A.

"The Evaluation of Fitness"—RUTH E. BOYNTON, M.D., Director, Students' Health Service, University of Minnesota.

"Positive Mental Health"—C. C. BURLINGAME, M.D., Psychiatrist in Chief, Institute of Living, Hartford, Connecticut.

ing operations, but in the larger organizations there is liable to be good control—for example, some 150,000 welders in the maritime yards during the last war apparently experienced no difficulty and lead poisoning was virtually unknown.

In summary, lead poisoning among the population at large is rare today, although one should not belittle the toxicity of lead. Industry, however, resents unsubstantiated accusations with respect to lead exposure. There have been some typical examples of carelessness by physicians in studying the etiology of supposed lead poisoning, as given by MR. WORMSER. A plea for better and more careful diagnoses of lead poisoning, both in industry and in ordinary life, was made. Finally, a critical suggestion was offered: There are enough data now on industrial lead poisoning to permit a reconsideration of the present standards of lead dustiness in air, which is 1.5 mgs. per 10 cubic meters at the present time—this makes no distinction between the different chemical forms of lead, lead compounds and their known differences in toxicity.

DR. MAY R. MAYERS, discussing the subject "Industrial Exposure to Lead," emphasized the necessity of physicians knowing whether an exposure is such as to create a lead hazard—that to many physicians, work with lead presupposes a lead hazard, but it is unfortunately not as simple as that. In fact, the private physician often finds himself in a somewhat unfamiliar environment, one which involves many considerations and responsibilities beyond the purely medical problems of making a correct diagnosis and treating the patient.

One of the first considerations is accurate information concerning the occupational exposure, which may necessitate air analyses. Although the practicing physician is not equipped to do these, there has been a great expansion of Divisions of Industrial Hygiene in Departments of Health and Labor, to which the physician may appeal for accurate information concerning industrial exposures.

Having done this, the next problem is the evaluation of the report which is not in actuality a true medical report. A note of warning was sounded on evaluating occupational exposure to lead in terms of "average" exposure, because there are certain "surges" which should be taken into consideration, as well as the question of occasional or intermittent exposures. This problem is to be studied more in detail in the evaluation of future experiences, as well as the problem of so-called "normal standards."

Formerly it was believed that prolonged exposure to lead accelerated the development of arteriosclerosis or chronic nephritis or both. Recent work, however, has not substantiated this. Moreover, there are very little data available, either as to the general etiology of obscure neurological conditions, such as multiple sclerosis, as being related causally to lead exposure.

One can conveniently talk about three characteristic clinical syndromes in lead poisoning: (1) a group having predominantly gastro-intestinal disturbances, including lead colic; (2) another group having predominantly neuromuscular disturbances, including peripheral neuritis and wrist drop; and (3) one characterized by disturbances of the central nervous system, including lead encephalopathy. Usually most persons exposed to lead under more or less controlled industrial conditions prevalent in this country at present are considered mixed cases of relatively mild character. Colic usually develops before neuritis, and cases of encephalopathy are extremely rare.

With respect to laboratory findings, the following suggestions were made: (1) laboratory evidence of lead absorption tends to disappear within a short time after exposure has ceased; such tests, therefore, should be made at the earliest possible moment; (2) when making quantitative analysis of biological material, collection should be carefully supervised to insure against contamination and care in the use of laboratory reagents free from lead impurities or contaminants; (3) laboratory tests should be performed only by reliable and experienced persons; (4) lead is excreted by so-called "normal" persons who have had no known exposure to lead; (5) it is essential that one be familiar with accepted standards for "normal" persons as a basis of comparison in determining what is called "excessive absorption" or "excessive excretion;" (6) laboratory data with reference to lead exposure and lead absorption are an aid to clinical diagnosis, but not substitutes therefor.

The distinction was emphasized between "lead absorption" and "lead poisoning," the former meaning nothing more than an absorption of lead into the body and the latter being the toxic stage of lead absorption.

There is great need at the present time for the application of good clinical medicine to the diagnosis of lead poisoning and it is essential to understand that diagnosis is in the last analysis a differential diagnosis.

In conclusion, technical advances in production methods and engineering techniques for the control of lead exposures in industry have developed to the point where we can look forward to the complete elimination of the hazard in the near future; in the meantime, however, it is necessary to stress the importance of extending medical supervision of lead workers to include every person who works with lead.

DR. JOSEPH C. AUB, concluding the morning session of the Conference on Lead Poisoning, discussed the subject "Absorption and Fate of Lead in the Body."

The discussion was confined mainly to the use of radioactive isotopes. Knowledge concerning storage of lead in the bones is vital and there is nothing much new on this phase of the subject. As is well known, absorption takes place most rapidly by the lungs. About 2% is stored after a year, from ingestion by mouth.

In animal experimentations, minute amounts of radioactive lead were mixed with inert lead and used as a tracer. Lantern slides showed deposits of lead in the dentine, and in various other bones, first in the trabeculae and later in the cortex of the bone. Human observations have shown that there is an equilibrium established between the amount of lead deposited in the trabeculae and in the cortex, after many years of time, probably resulting in a rather even distribution finally between the trabeculae and the cortex.

Deleading is probably best accomplished after acute exposures to large amounts of lead and not in the presence of small amounts absorbed over a long period of time.

DR. DONALD HUNTER spoke on the subject "Clinical Diagnosis." An invitation was issued by DR. HUNTER for all those interested to attend the Ninth International Congress on Industrial Accidents and Diseases, at London, sometime during 1947—the date has not yet been set, but all those who are interested and able to come are cordially invited.

In the English experience, lead poisoning does not represent any large group of cases. Statistics were given on the various types of 100 industrial cases and nine non-industrial cases, due to various causes.

Also, as a portion of the presentation, experience in fluorosis was detailed by the showing of lantern slides, and x-ray films. Particular mention was made of cryolite in this respect. Examples were also given of spondylitis and the transmission of poor teeth by pregnant mothers.

Experience was also detailed with respect to devising and use of a portable laboratory and a description of the research work with this laboratory was given.

DR. WILLARD MACHLE spoke on the subject of "Clinical Diagnosis," also, stating that there are few specific changes upon which one can depend—that stippling and reduction of hemoglobin are really the most important.

There is a wide divergence of opinions on the single stippled cell count, but these are still important. It is difficult to evaluate the results of stipplings, even after a great deal of experience. Single counts are only valuable when critically applied.

It is exceedingly difficult to correlate exposure with clinical findings. It is probable that the reticulocyte count is more sensitive than the basophilic aggregation determination.

In conclusion, basophilic aggregation determinations are

significant and are particularly of use when a uniform method is used, providing an index of trend. Supportive evidence of lead intoxication is very necessary in making a clinical diagnosis, and other laboratory and clinical evidence is also important.

DR. JOHN CAFFEY discussed "Radiology in Diagnosis of Lead Poisoning."

During 1929-30 there were many roentgenological manifestations chronicled by observations in the literature. An increase of cancellous bone at the chrondo-osseous junction is important in these observations. The lead line is found in many conditions, and therefore is not conclusive. There have been many instances where roentgenologic manifestations have occurred, associated with great difficulties in getting examination of tissue. These have represented cases where it is not possible to get real comprehensive data. It is also interesting to still hear about the use of a lead nipple shield, which supposedly was discontinued a long time ago.

Many lantern slides were shown of changes taking place at the epiphyseal junction—these findings needing critical evaluation as to possible lead effects.

DR. LAWRENCE T. FAIRHALL discussed "Analytical Methods in Diagnosis."

In various analytical methods in recent times, the tendency has been to select those which are easy to do, rather than those which are more accurate. It is of course well known that the analysis of small amounts is difficult.

A discussion of the finer analytical methods was given including the use of the dropping mercury electrode and also the usual dithizone method—the former must be made carefully with proper calibration.

Within recent times, most of those who are associated in this work regard most blood values with some concern; we are not particularly solicitous about the amount in the blood, but really are interested with regard to the research with these values—in other words, the source of real values is of the greatest importance.

Research workers in this field have come to match the results of analytical methods with the chemists' ability. It is hoped that later, and the sooner the better, the obscure chapters of analytical methods will become clarified.

DR. ROBERT A. KEHOE concluded the Conference on Lead Poisoning.

The public ingestion of lead varies in food and drink sources from 0.0 to 2 mgs. per day, there being much less in drink than in food. Probably safe limits of ingestion lie between 0.3 to 0.6 mgs. per day.

It is likely that 2 to 3% maximum of ingested lead is really absorbed.

A precise method of analysis is very important in these determinations.

Up to 0.12 mgs. per day represents the inclusion of susceptible persons, but the unknown variability in exposure is probably more significant. Susceptibility is not really an important factor in industrial exposures.

One of the most important considerations in analysis is prohibition of contamination which may interfere with any real accuracy. This may account for variations from 6 to 20 mgs. per liter.

The diagnosis by competent physicians including a differential diagnosis is of the utmost importance. History of lead exposure is in many instances misleading and in most cases, is not really significant.

It is important to keep in mind that we can now estimate the significance of an exposure and this should be done not by a story but by the evidence which is obtained from the body of the individual; this should give accurate information, without guesswork.

State Societies Dinner and Round Table

WITH DR. CLARENCE D. SELBY, of Detroit, and DR. DANIEL L. LYNCH, of Boston, presiding, an informal dinner and round table discussion intended primarily for personnel of committees on industrial health of state and county medical societies was held on the evening of the first day, Monday, September 30.

JAY I. BOXER was the speaker of the evening, discussing the subject "Cooperation Pays in Brooklyn."

Industrial health is a community health problem and is of direct concern to management and labor, since these two groups stand to benefit or lose the most where industrial health problems arise.

Health education in industry may be defined as the promotion or "selling" of a health idea to management and worker, and then getting them to act along lines the idea implies. Dissemination of information alone, with no follow-up to insure action on the part of the educatee, is not true health education.

The most important function of health education is to motivate the individual so that he follows good health practices. A plant may have the finest sanitary and clinical facilities and yet show a discouraging return from the investment if those involved do not understand, respect, cooperate with, and properly utilize those services. "Health education not only tries to get management to provide the water, but it also makes the horse want to drink."

The work of the Brooklyn Industrial Health Committee, organized in 1944 with the cooperation of management, labor, the county medical society, the city health department and voluntary health agencies, was described. This foresight in winning cooperation from all interested groups has paid dividends, and not a single occasion of serious friction has developed. The work has been purely educational and promotional by the Brooklyn committee.

During the first two years of the experiment, contributions were received from management, labor and voluntary health agencies. As contributions diminished, resulting largely from cutbacks in industry after the war ended, it was evident that if the work was to continue, some new method for financing the project had to be found.

The Penny Plan for Health Education in Industry was finally developed as a possible solution. The Penny Health Plan offers to firms an opportunity to enroll as participating members at the rate of a penny per worker per month. A plant having 300 workers would be assessed $3.00 per month. For plants having fewer than 100 employees, a minimum of $1.00 per month was established.

The Brooklyn committee is currently engaged in a campaign to enroll a minimum of 100,000 workers, this being about one-third of the potential enrollment in this area.

Tuesday Morning Session

THIS was a general session with DR. STANLEY J. SEEGER presiding, the call to order being given by DR. DWIGHT O'HARA, the invocation by the RT. REV. THOMAS R. REYNOLDS, and an address of welcome by HON. MAURICE J. TOBIN, Governor of the Commonwealth of Massachusetts.

DR. STANLEY J. SEEGER gave the Report of the Council on Industrial Health.

The problems of industrial health are not static—for example, there have recently been considered (1) protection of war workers; (2) aviation supervision; (3) nuclear fission; and (4) UMWA provisions.

Problems of public relations, scientific standards, workmen's compensation, and rehabilitation have also come in for consideration. Among all of these, industrial hygiene has taken a prominent place. Governmental relations have also been an important aspect of industrial health activities.

Medicine has much to contribute to industrial relations and planning should be by management, labor, and medicine. The physician should be responsible to top management and there should be free choice of physicians. A high standard of medical care is the real concern.

The Council has been much interested in medical education and also in the subject of certification on broad knowledge of industrial health subjects. The magazine *Occupational Medicine* has been an important factor in establishing close relationships between various members of the profession.

The sections of the American Medical Association play

an important role in disseminating information. The work of the Committee on Workmen's Compensation has been considered the greatest contribution since the passage of legislation, in this aspect of industrial health. Rehabilitation has been found a real medical problem and solution is possible only through good medical supervision.

In conclusion, the Council is prepared to work with the employee and the employer alike in the creation of a high type of service.

THE remainder of this session was devoted to a panel on "New Horizons in Industrial Health and Welfare." The moderator, DR. WILLIAM A. SAWYER, made a few preliminary remarks, stating that there are new conceptions of who should be responsible for these activities and that it is well to examine new trends.

MR. BORIS STERN stated that the Bureau of Labor Statistics does not advocate any special program of health, but that it is rather the object of the bureau to keep abreast of industrial relations. Information is received from unions and management voluntarily and also there is an occasional survey.

There were few provisions relating to industrial health in the contracts during 1942, but there were a considerable number in 1945 which have been published in Bulletin 841 on "Health Benefits." There are now more than one and one-quarter million workers covered. Therefore these provisions are relatively new.

The recently negotiated agreements in hard and soft coal cover 450,000 workers, the most covered by agreement of any one union, but the clothing trades' health and welfare funds lead in over-all coverage, as well as in age. The following funds were cited and their coverage noted: men's clothing, 255,000 workers; ladies' garments, about 200,000; textile, all kinds, 125,000; hats and millinery, 20,000; laundry, cleaning and dyeing, 30,000. There are other industries, for which the bureau has no precise information on workers covered, these being street railways; machinery, particularly electrical; retail and wholesale trades; fur and leather; furniture; building trades; and office workers.

It is felt that it is important for management and labor to get together on these plans. There have been many variations and differences.

In conclusion, it was stated that labor has tried to develop a program of its own, but has not been entirely successful; management too, has tried to protect the health and welfare of its employees through programs initiated entirely by management, but these too, have not been successful. It is only when labor and management join forces and cooperatively, with or without the aid of the government, tackle the problem that we can expect real accomplishment.

REAR ADMIRAL JOEL T. BOONE (MC) USN stated that great advances have been made through practical programs in various industries. Although there are many problems, there is a bright future for the improvement or many different types of programs.

It is quite evident that there has been some difficulty in the coal mining industry and that health problems are common, but it is believed that a contribution will be made (referring here especially to the health survey which is now being undertaken) and the services of the Naval Medical Corps have been obtained for this study. There will be a random sampling of about 15% of the mines. Field teams have been chosen and briefed and five area headquarters have been established.

It is to be expected that there will be considerable variation in different communities with regard to sanitation provisions and other matters. In the survey, the over-all picture will be emphasized and it is hoped that all industries will be benefitted.

It is recognized that there is great need for improvement and that public education is a very vital factor in the success of this enterprise. It is also to be emphasized that the medical profession can make a great contribution here.

COMPLETING this session, MR. ANDREW FLETCHER spoke as an individual, not representing any group or organization.

Good health should be a common ground of agreement and should not be negotiated. Health should not be made a matter of collective bargaining.

There is great concern about granting sick leave with pay, especially giving large periods of time or great leeway.

In a recent absenteeism study in one organization, it was shown in 1940 to 1945 the percentage due to injury was 0.15 to 0.44; due to personal reasons it was 0.87 to 3.51; and due to sickness it was 1.26 to 2.09. Sickness averaged about five days per person annually. An insurance company estimated about $14.42 per worker per year to make an effective contribution as usually carried by an individual. Perhaps it is better that this be carried individually or on an association basis.

It is believed that negotiations should be confined to salary and wages and that there should not be negotiations conducted on health, work leave or bonuses; it is thought that if the latter suggestions are carried out, better production and better standards of living will result.

Tuesday Afternoon Session

DR. CHARLES FREDERICK YEAGER presided at this Conference on Industrial Medical Administration.

DR. EARL F. LUTZ spoke on "Conserving the Health of Management," outlining the recent plan of the General Motors Corporation.

The conservation of the health of executives is a most vital consideration and it is thought that an annual health audit is really valuable in this connection. Prior to 1944 little had been done in this company, but when a study was undertaken and it was found that deaths from angina pectoris, coronary thrombosis or occlusion, or cerebral hemorrhage, were prevalent among executive employees who were subjected to extended hours of work, excessive travel and mental strains due to the increase of responsibilities which the war effort demanded—it was decided to establish this examination program on a voluntary basis for executives.

In August, 1944, the Policy Committee of General Motors approved an annual health examination for the management group. It was estimated that approximately 500 persons would be examined the first year; instead, more than 900 availed themselves of the opportunity.

Following is a summary of the various aspects of the examination program: (1) it is on a voluntary basis; (2) reports are confidential and are not sent to any of the officers or medical directors of the company; (3) a clinical interview (terminal) is a part of the program; (4) two reports are issued, one a scientific report for the private family physician and another, a layman's report for the individual; (5) there is an established method of notification for repeat examinations; (6) executives are urged to have examinations without delay; and (7) an official approval is made of the charges for the examination.

Another feature of this program was that executives were urged to take a full vacation of one month. This is for the reason that individuals who are under heavy mental strain often need one week or 10 days of rest before they are able to relax thoroughly and reap the benefits of a vacation. Unfortunately however, the Wage Stabilization Board refused to permit an extension of the vacation period when it was requested by the General Motors Corporation.

Emphasis has been placed on frequent periodic advice to executives in order to prevent breakdown or fatigue and also furnish an opportunity for health education.

The plan has been widely accepted. Because of its confidential nature, there has been obtained no identifiable personal information on the results. Nevertheless, data of a general nature have been obtained, permitting an estimate of the health of the group. These show that approximately 30% of those examined were found to have significant impairments of their health, such as heart disease, high blood pressure, active pulmonary tubercu-

losis, arthritis, nervous ailments, diabetes, prostitis, gastric ulcer and gall-bladder disease.

MR. WILLIAM H. SEYMOUR discussed the subject "Fitting the Service to the Plant," his remarks applying to small plants.

The large plant program is not particularly adaptable to small plants, even on a miniature basis. Certain items must be picked for each plant, remembering to choose those which are most essential and of the greatest economic value, to get the most for the medical dollar.

The speaker did not agree with the idea that a certain number of hours should be required for a unit of 100 persons served.

Among the most important factors in the success of such a program are: (1) adequate physical facilities and (2) the service being set up on a proper basis of internal relations.

There are many criteria for the decision of the type of service to be established and these must be individualized for each group. A comparison was made, for example, between a boiler plant and a cosmetic group, as typical of the different kinds of service necessary.

The value of a balanced program for small plants has been proved by the experience of this organization. One must first study the plant and its needs and, later, one must prove the value of what has been proposed.

Three questions the speaker posed for answers—(1) How are physicians to be trained for this special type of service? (2) How are trained physicians to be found? (3) How can their services be obtained?

In closing, additional emphasis was placed on individualization of small plant needs in the establishment of health programs.

The next three speakers, DRS. POOLE, ARLING and MILLMAN, presented recent experiments in small plant medical service.

DR. FENN E. POOLE touched on only a few phases of the subject—which he considered were pressing for solution.

It is doubted if an arbitrary line can be drawn between large and small plants, from a numerical point of view, with respect to health services. Small plants are really those whose needs can be met by part-time services, including groups from 4000 to 5000, according to the type of groups.

Adequate service should provide examinations, first aid service, treatment for non-occupational maladies of first aid type, inspections, records, reports, and various other factors which are well known. These services can be rendered by a group of physicians, providing a "package" service determined by the needs of each plant.

Costs are determined by the extent of the service and the number of persons served, usually on a per capita basis. A sliding scale, however, is possible, but if used should be understood at the beginning.

Instead of management employing the nurses, physicians might better employ them for better plant relationships.

It should be the function of medical organizations to find ways and means to carry the gospel to small plants, to educate them as to what they really should have, and what type of programs to establish.

In these programs, the physician should be responsible to top management.

There has been a favorable experience with unions, since they have the same objective of keeping men on the job, as does the medical profession.

There should be continued extensive research into the medical economics phase.

DR. LEONARD S. ARLING described recent experiences of an industrial clinic organized to supply as complete medical services for small industrial plants through an independent group, as have been provided within large industries.

The clinic was located on a principal industrial artery between two cities with a heavy concentration of manufacture within a five-mile radius. Suitable office space was finally obtained in a large three-story brick residence, provisions being made on the 1700 square feet of the ground floor for reception room, business office, clinical laboratory, x-ray department, surgical and examining rooms, closet space and accessible passage for the use of additional floors as the need for them would develop. This need has already arisen, with the result that the entire building is now being taken over for clinical use.

Since being opened in 1945, the clinic has been expanded to serve more than 90 industrial firms ranging in size from a dozen to several thousand employees. The widely diversified work performed by these firms requires that the medical service be tailored to fit the needs of each individual plant. This is done by plant visits and inspections in company with a nurse, safety director or other representatives of the management or labor committee, and the subsequent discussion of hazards or current problems.

The active staff is composed of five physicians, one who had a degree in chemical engineering before getting the MD degree, which was later followed by a Master in Public Health—this provides a service in evaluating industrial health hazards; another member of the group has had 10 years' experience as the medical director of one of the larger local plants. Two members are well trained surgeons, one recently out of the army and the orthopedic head of a large general hospital—the other having had extensive surgical practice and more than 25 years' experience as medical director of a subsidiary of a large public utility. The fifth physician had three years' army service since his medical training. There is also included a university trained medical technician, a graduate nurse, and a medical secretary.

The consulting staff is composed of men who are certified in their respective fields of dermatology, internal medicine, psychiatry, ophthalmology, and roentgenology—these having independent offices in the adjacent cities of Minneapolis and St. Paul.

The aim of the clinic is to adhere to the principles and standards advocated by the Council on Industrial Health of the A.M.A. and by the American College of Surgeons. An attempt is made to provide prompt and efficient care of all injured or ill employees through pre-placement and periodic physical examinations with a minimum of waiting, and treatment of each employee with the same consideration given to a private patient. The clinic is limited entirely to industrial care and, therefore, persons with non-industrial medical or surgical conditions are referred to their own physicians. Also, any employee desiring to see his own physician for care or consultation regarding a compensable condition is encouraged to do so.

In summary, it is believed that the following features should characterize an industrial clinic:

1. It should be set up specifically for industry.
2. The service should be tailored to the needs of the individual plant.
3. It should provide expedient and adequate care of occupational injury and disease.
4. Emphasis should be placed on adequate physical examinations and job placement.
5. The personnel must have a concept of the part the medical service plays in labor-management relations.
6. It should meet the standards for industrial medical practice advocated by the American College of Surgeons and the Council on Industrial Health of the American Medical Association.

DR. NATHAN MILLMAN, concluding the session, described the cooperative plan for the development of a small plant health and industrial hygiene program in New York City. This has previously been described in the June, 1946, issue of INDUSTRIAL MEDICINE. Following, however, are the conclusions of this program:

As the result of this experience with an industrial health program as outlined and beginning January, 1945, in a group of seven small plants ranging from 70 to 700 employees, and covering various types of industries, the following can be stated:

1. A large group of apparently healthy adults comprising the industrial population can be brought under proper health supervision and given the benefit of preventive health measures, even though they work in comparatively small plants.

2. The program requires organization of various community groups, official as well as unofficial, such as the Department of Health, Department of Labor, Medical Society, nursing organization, Chamber of Commerce, manufacturers' associations, and labor unions.

3. The program also requires proper plant organization.

4. The program is economically feasible.

5. A well-organized health program requires constant supervision which can be suitably furnished by a local official health agency.

6. If properly conducted, various benefits accrue to the employees, employers, and community.

Tuesday Evening Dinner Session

WITH BRIG. GEN. JAMES S. SIMMONS presiding, the Pan American Relations dinner and conference provided a discussion of industrial health and hygiene with reference to current international health developments and with especial emphasis upon improved inter-American industrial health relations.

Opening remarks were made by DR. STANLEY J. SEEGER and the speaker of the evening was DR. W. W. PETER, who described the training program of the Institute of Inter-American affairs.

In brief, this cited the activities of the organization particularly with reference to the placing of Central and South American physicians and scientists in scholarships and fellowships in various schools in the United States. A number of these physicians and investigators were present from Central and South America and were introduced, making short acknowledgments. It was the sense of the meeting that a great deal can be gained by an exchange of physicians and investigators between the North American and the Central and South American republics, thus exchanging information with reference to industrial health developments.

Wednesday Morning Session

THIS was a Symposium on Therapeutic Highlights, composed of short summaries of current knowledge on common industrial medical problems, arranged with the Council on Pharmacy and Chemistry, of the American Medical Association.

DRS. TORALD SOLLMANN and WILLARD MACHLE presided. DR. ALEXANDER HOLLAENDER opened the symposium with the subject "Air Disinfection in Industry." This problem is one of recent interest. Historically, the investigations were first started with regard to the control of dust and it was discovered subsequently that it is difficult to reduce the number of organisms significantly in eight air changes per hour.

Oil has been used to lay dust and has been instrumental in reducing counts of bacteria as much as 90%.

It is felt that sampling methods are not as efficient as they should be, one objection being that there is no distinction made between infection and non-infection producing organisms.

Other methods (chemicals) have been used and reference was made here to Robertson's work on glycols. It is difficult, however, to control the concentration of these vapors, although now a device is available for this purpose.

Work has been done with the cooperation of the Bureau of Medicine and Surgery of the Navy, particularly with reference to the use of ultraviolet rays which it must be remembered kill other living cells as well as bacteria; however, it is easy to protect the human tissue when exposed.

A reduction of air-borne infection in high radiated areas has been experienced. There was a lowering of upper respiratory rates in irradiated barracks, there apparently being more infection in those occupying upper bunks, while younger men showed higher rates in the irradiated group but not in the control group.

It is felt that ultra-violet ray use for this purpose is still in the experimental stage and not yet generally applicable. Checks should be made on the use of radiation in various types of industries.

In conclusion, it was stated that general installations without tests are not justified.

DR. LOUIS SCHWARTZ discussed "The Control of Fungus Infections of the Feet in Industry."

Studies were conducted through the U. S. Public Health Service, making an exhaustive investigation of fungus infections on the feet of industrial workers in six industrial plants, covering a total of 1393 men and 730 women workers. Clinically, 28% of the workers had fungus infections of the feet; 34% were doubtfully affected; and 38% were free of infection. The chief organism encountered was trichophytin gypseum, this being found in 92% of the cases. Such infections were more prominent in the summer season. The figures from this study show that there is no greater incidence of fungus infection among industrial workers than among the general population—indeed, the incidence is usually higher in the latter group.

Since shower room floors often have been blamed as the source of fungus infection of the feet, the floors were also studied. It was possible to recover the trichophytin gypseum from pine flooring on which it had been planted, even after a period of one week and the trichophytin was also recovered after 72 hours, after it had been planted on copper impregnated concrete.

Because the trichophytin requires heat, moisture and dead skin in order to grow, the thorough drying of the feet between the toes, the removal of scales and dead skin and the sprinkling of powder between the toes to absorb moisture and keep them dry will discourage the growth of fungi. A non-irritant antiseptic absorbent powder is preferred; or a non-irritant antiseptic ointment. Frequent change to dry clean socks is also of value.

Only 20% of occupational dermatitis cases are of allergic type—fungus allergy only concerns eight of 10,000 workers. It is, therefore, stated that fungus infections play an insignificant role in occupational dermatitis, and that these difficulties are no more prevalent in industry than in the general population.

DR. WILLARD MACHLE gave a summary of recent work on the subject "The Control of Heat and Fatigue in Industry."

Increases in temperature from exposure to heat are not necessarily progressive, but tend to establish an equilibrium.

There are a number of factors influencing heat reactions and also certain variables, most of which are not evaluable. It is not possible to correlate work incapacity with rectal temperature and it is significant that many persons work well up to the point of heat exhaustion.

In laboratory work, industrial conditions have not been reproduced with any considerable accuracy. Moreover disabling heat effects may occur without significant rise in temperature and there is no universal standard of application.

There is a great need for certain standards at present, but these are not possible under present circumstances, however an index of the factors can be used. Perhaps the wet bulb temperature is the best criterion regarding temperature, but there is no index for all factors.

Control methods are constantly being investigated. For example, general cooling and spot cooling by air blasts have been used. The selection of personnel is another control method, but fitness tests must be done in the presence of heat and moreover, acclimatization is necessary. Selection of men has been pragmatic and necessarily one has had to proceed by a method of trial and error.

No expression has been devised for denoting cooling off after exposures—there has been some variation in the figures obtained. Nor has there been any standard practicable for water intake.

A discussion of salt intake was given and considered only in great degrees of work. Vitamins were also men-

tioned with the warning that no definite data with reference to vitamin supplements to the diet have been devised.

DR. WALTON VAN WINKLE concluded the symposium on therapeutic highlights, summarizing "The Place of Clinical Research in Industry."

Clinical research, which has led to a great many discoveries in the field of medicine, has a place in industry, but industry is not an ideal place to solve problems of clinical research. If a health problem requires study or clinical trial, a competent and responsible investigator should devote his full time to it. If this cannot be done, it is better to abandon the project than to do a poor investigation which, when finished, does not provide a satisfactory answer.

Clinical research must be properly conducted and critically evaluated. Too much slipshod work has been published in this field. Unless the job can be properly done, it shouldn't be attempted. Fewer investigations of better quality will give more and better results than many investigations, poorly planned, inadequately carried out, and uncritically evaluated.

Complexity of modern industrial processes, the employment of large numbers of workers, the way they move from area to area, and the various state and federal regulations governing health and welfare of industrial workers have created medical problems whose solution should be sought within the affected industry. An appreciation of these problems and an intelligent approach to their solution is one of the many opportunities for the industrial physician.

Great progress has been made in the solution of problems involving exposure of workers to industrial hazards. Less progress has been made toward the solution of the problem of incidental illness of the worker. Absenteeism due to respiratory infections, contagious diseases, and other illnesses not directly related to the conditions of employment is still a problem whose solution must be sought. Because prevention is the logical aim of any effort to reduce industrial absenteeism due to non-industrial illness, much attention has been directed toward preventive medicine. Yet, many of the investigators have failed to use methods which are suited to the problem under study. Investigators working in other public health fields have developed methods for the study of problems involving preventive medicine, but these methods seem to have been overlooked by those working in industry where the problems are similar.

Recently industry has been besieged with advertisements of various preparations alleged to prevent, cure or reduce absenteeism due to respiratory infections—the type of illness which is a major in lost man-hours. The value of these preparations is said to be established by the results of investigations in various industrial plants. An examination of the work upon which the claims are based reveals a complete lack of appreciation of the fundamentals of scientific research and a credulous and uncritical acceptance of clinical results which prove nothing. As examples of the preparations or devices which have been exploited to industry on the basis of faulty and uncritical research are oral cold vaccines, vitamins to reduce fatigue and increase energy, salt preparations as a substitute for proper dietary measures and ultraviolet lamps for the control of cross infection.

The waste of time and money involved in the performance of worthless clinical investigation is enormous. It is necessary therefore to examine the methods employed in clinical research and the criteria by which the results of such research can be evaluated.

Atomic Energy in Industry and Medicine

THIS symposium was arranged with the Council on Physical Medicine of the American Medical Association, and DR. FRANK H. KRUSEN presided. DR. SAMUEL K. ALLISON opened the symposium, on the subject "Atomic Energy in Industry and the Physical Sciences."

Applications of atomic power to industry and the physical sciences are being delayed because of unsettled conditions in Europe. The fear that other countries will develop atomic weapons before any reliable plan is worked out to insure world peace is holding up the dissemination of information necessary to peaceful atomic developments. The present procedure is leading in certain cases to excesses in the suppression of information which, in the opinion of the essayist, were difficult to justify, but is approved by many politicians, military men and even some scientists.

The physics and technology of the present chain reactors indicate that one of the first industrial applications will be the erection of large power plants, operating on atomic fuel and generating electricity for distribution to towns and factories. The most recent cost estimates indicate that electricity from atomic power will be more expensive in regions where coal is readily accessible than from the conventional coal-burning installations. Such cost estimates are extremely difficult to make, and the fact remains that the transformation of 240 tons of uranium into fission products releases energy equivalent to the burning of 660,000,000 tons of coal. This is a ratio to conjure with. Within a year a pilot plant generating electricity and consuming uranium fuel may be operating under the auspices of the Atomic Energy Commission. It was the opinion of the essayist that the construction of such plants will be carried on at first with a government subsidy until their practicability is given a thorough and realistic test. No other policy would be consistent with the directives of the Commission. The use of atomic power plants for ship propulsion, and even for the propulsion of very large, long-range aircraft, is not ruled out definitely.

Industries which, for special reasons, need to be located far from coal or water power and use large quantities of low temperature heat should keep an eye on atomic power developments.

The Manhattan District has already announced that many radioactive substances formed either as fission products or by exposure to materials in the chain reactors will be distributed to properly qualified applicants and some such distributions have already been made. At the present time it seems that the substance which will most profoundly influence research in the life sciences is radioactive carbon. This long-lived carbon of atomic weight 14 was discovered in tracer amounts with the use of the cyclotron shortly before the war. Now it will be possible to prepare grams of the material. An associated project of considerable magnitude will be the preparation of complex organic chemicals in radioactive form. It will of course be possible to prepare organic substances in which very specific and known parts of the molecule contain the radioactive carbon, the rest of the molecule being inert.

The setting up of a center for the manufacture and stock piling of such drugs is a matter with which the American Medical Association could well concern itself. The lack of such a center is at present a bottleneck to progress in this field. For certain organics, such as serums, opiates, dyes, and the like, it may be best simply to use animals or plants as the synthesizing agents. Farms may be operated in which the fertilizers and foods will be radioactive, so that radioactive antitetanus serum can be obtained from radioactive horses and radioactive opium from active poppies.

Emitters of penetrating gamma radiation can be produced in the chain reactors and will soon be distributed. A form of cobalt, living about five years, and an antimony of 60 days' life are prominent among these. Point sources of these can be prepared and used for radiological examination or broken parts of men and machines. It does not seem probable that these will displace roentgenographic installations in permanent hospitals or factories. However, for emergencies in remote locations, for instance, where the patient cannot be transported to the hospital, a minute capsule of these substances can be flown to the spot for diagnosis or treatment. This, of course, can be done in considerable measure with radium today. However, the artificial gamma ray emitters will be cheaper, more abundant, and more versatile in that the energy

of the gamma ray and the life time of the emitter can be selected to suit the demands of the case.

Many who have looked forward to such applications for months and years are impatient at the delays in acquiring momentum. We should remember, however, that we are in the backwash of the greatest war effort this country has ever made, and that we are trying to reconvert to peaceful ways at a time when many persons consider that such reconversion is hardly justified in the light of the troubled state of the world.

DR. SHIELDS WARREN discussed "Physiologic Effects of Nuclear Energy."

For our information in this field, we have to depend upon several sources: (1) laboratory experiments (such as Bikini); (2) clinical observations of Japanese exposed in bombing; and (3) investigations in coming years.

Electromagnetic effects have been observed, and, owing to transference of heat, the patterns of dresses or clothes have been impressed upon the skin, and there have also been ionizing effects such as loss of hair and leucopenia which has led to infection.

It is especially important to do white blood cell counts, particularly lymphocytic counts, with the production of leucopenia in mind, since this is a characteristic condition.

There also have been effects on the gonads. It is notable that there is no principle of awareness of dangerous exposure.

Radioactive phosphorus has been used in injections in leukemia and with respect to this and other conditions, bone marrow slides were described.

Only a beginning has been made and relative advantages are to be obtained from these various methods of study.

DR. JOHN E. WIRTH concluded the symposium on atomic energy, discussing "Essential Safeguards in Production and Use of Atomic Energy."

The production and use of atomic energy have brought about hazards previously encountered only to a limited extent in the radium industry, the x-ray field and more recently in research laboratories working with equipment such as cyclotrons and betatrons.

The safeguards against these hazards must be considered for the protection of personnel at the site where the work is being performed and for the protection of the community surrounding it. In both cases, we are concerned primarily with prevention of damage to human beings.

In the case of radiation hazards, prevention of damage means prevention of exposure to quantities of radiation which may be harmful. Since there is no known means of reversing the biological effects of dangerous amounts of radiation, prevention of exposure is the only safeguard.

The alpha emitting contaminants are among the most lethal hazards when they are inhaled, ingested or get into wounds.

Protective clothing requirements vary from a complete change of clothing, the use of coveralls, gloves, masks, respirators, shoes, shoe covers, rubber overshoes and caps to various combinations of these and other special items. Facilities must be provided for laundering contaminated clothing. Special soaps, chemicals and modified washing cycles are required to remove such substances as plutonium (one of the elements used as an explosive for the atomic bomb). Each article must be checked for residual activity before it is used again.

Wednesday Afternoon Session

THIS meeting was a Symposium on Fitness for Work, with DR. MORRIS FISHBEIN presiding. The session had been arranged with the Committee on Physical Fitness and the Bureau of Health Education of the American Medical Association. DR. MORRIS FISHBEIN discussed "Essential Factors for Health and Fitness."

Available facts and figures show that the American people are today the healthiest people in the world. Our sickness and death rates are among the very lowest of all great nations. Nevertheless, there are still evidences of physical deficiency in some of the population which are capable of prevention and in some instances, of correction. Men who were rejected by Selective Service because they could not meet the highest physical or mental standards established for military service by any army could in a great many instances have been made physically fit, had the abilities that medicine has to offer been available to them from the time of their conception until they came before the Selective Service Board. Many registrants were pampered and soft and in need of physical conditioning. It is folly for a nation as wealthy and efficient as ours to fail in the utilization of what medical science has to offer in developing a nation that is physically fit.

Not every person who is mentally or physically unfit can be benefitted. There are some defects that are not preventable. Perhaps 1,500,000 of the 4,000,000 who were rejected could not have been freed of their disabilities nor been greatly benefitted by the application of medical facilities. Nevertheless, 2,500,000 could have been made more effective in the occupations which a good many of them filled satisfactorily in civilian life.

Fitness is a state of mind and body in which the tissues have power and efficiency. A program of physical fitness includes the teaching of good personal hygiene. This, in turn, means enough sleep, the right kind of ventilation, proper nutrition, controlled exercise and rest periods, mental hygiene and recreation. The person who is fit has a great deal of what the sports writers call "bounce." His mind and body are resilient and elastic. He recovers promptly from minor bruises to his tissues or his personality.

Chief among the causes of rejection of the men classified as 4F's were such disqualifying defects as missing limbs, deformities present at birth and obvious disabilities resulting from illness or injury. These accounted for 10.5% of rejections, which nevertheless did not wholly disqualify these men for proper places in industry. Some of them played professional football or baseball through the four and one-half years of war.

There were 16.6% rejections for mental disease and 13.8% rejections for mental deficiencies. Great numbers of men called psychoneurotic for military purposes have returned to civilian life and are today adequately filling many positions in our civilian economy.

Correctible or capable of prevention are such conditions as syphilis, which disqualified almost 7%; conditions affecting the heart, 6.5%; ruptures, 5.7%; and neurologic defects, 5.1%. Defective vision, hearing and teeth accounted for 5%, 3.9%, and 0.9% of the rejections respectively. Underweight and overweight were together responsible for 1.5% of rejections.

It is to be borne in mind that these figures are not absolutes; they should not be held as indicating a degenerate and decrepit nation. They represent instead merely a guide to the perplexed as to the areas in which application of what medicine has to offer can still further improve the fitness of the nation. Improvement of physical fitness must begin even before birth with proper prenatal care, extend through infancy with an immunization program that might prevent infectious diseases of childhood and their crippling complications, and go on through the nursery and kindergarten where sound habits of nutrition begin to be established, and carry through grade school, high school and college in which sound instruction in health habits and physical activities, including competitive sports, would be integrated in the curriculum. Finally, when the boy or girl has left school, there must be continuing participation in healthful living, sports and recreation pastimes to maintain the physical fitness that the schools have established. The development of such a program demands a nation-wide participation and depends for its success on the cooperative efforts of physicians and all of the accessory medical professions, physical educators, industries, and the general public.

COL. RICHARD H. EANES discussed "The Need for a Physical Fitness Campaign."

In general there were better criteria of selection main-

tained in World War II than in World War I, although many problems were encountered. Approximately 34,400,000 men were regrouped in the age period 18 to 44 years. Approximately 20 million examinations were made of men one or more times and 33% were declared to be unfit.

Lantern slides were used to show tabulations and it was pointed out that the nine leading causes of rejection were substantially the same in both wars. Figures were given relative to defects for the 18 year old group, both white and colored, including such defects as mental, cardiovascular, muscular and skeletal, eye and ear, hernia, and others less important.

It is important to point out that attention to conditions behind the production of unfitness is necessary and also corrective measures to meet these problems. Rehabilitation must be done before mobilization takes place. Both immediate and long-range procedures were discussed. An educational program is tantamount—there must be created an awareness of the necessity for individual correction of defects and health maintenance.

Industry must be convinced of the importance of fitness of workers, not leaving out the colleges and universities. Facilities for correction must be made readily available.

There should be a long-range indoctrination of desire for health in the home. School programs are not yet efficient on education in ordinary and simple principles. When thoroughly established, the program should be carried out forever and not allowed to be discontinued; with such a program results should be expected within a generation.

Finally, we are not a nation of weaklings, but much improvement can be made in the conditions which obtained in the armed forces when it was necessary to go through selective processes in order to get men who were physically and mentally desirable.

DR. DEAN F. SMILEY presented the subject "Does American Education Produce Physically Fit Workers?"

The production record of American industry during the war years provides indisputable evidence that 40 million men and 20 million women workers must have had an incredible reserve of physical strength and stamina. This is evidence that American education does produce physically fit workers. Yet much remains to be done for better physical fitness in American schools and industry.

Whether we look to the records of health examinations of high school children or to the records of entrance examinations of college students or to the preemployment medical examinations in industry, it is abundantly evident that when our young people graduate from high school many of them still have physical defects unremedied; many have soft, flabby untrained muscles; many are still not immunized against smallpox, diphtheria, whooping cough and tetanus; many have faulty sleep habits and eating habits; many have undisciplined habits in the use of stimulants, and many have an inadequate knowledge to protect them against the hazards of their industrial or community environment.

The responsibility for remedying all these deficiencies does not lie solely with the schools. The correction of physical defects and the inculcation of good habits of discipline, sleep, exercise and diet are obviously much more the responsibility of the parents and home than of the school. Improved health training of children in the home and increasing use of periodic health examinations of children by the family physician are, therefore, essential parts of a program designed to produce young men and women who are physically fit for the arduous duties of industry.

It is to the school that we naturally look for the development of motor fitness and motor skills, as well as for the imparting of knowledge concerning problems of personal health and industrial hygiene. It is to be hoped that both of these objectives will receive the attention in the postwar schools which their proved importance justifies.

The whole community also has important contributions to make to this program of health and physical fitness. When the parents do not have the means to provide for the correction of physical defects or for immunization, it is obvious that the community must provide the means rather than let the child go on handicapped or unprotected. And certainly the community can assist greatly in providing attractive facilities for sports and recreation and in creating a favorable attitude toward health maintenance and physical fitness.

The answer to the problem of health and physical fitness of recruits for industry lies then in the joint action of home, school and community:

1. To equip each individual with a knowledge of health and sanitation sufficient to enable him to meet new health problems successfully.
2. To inculcate in each individual habits of health care and sanitation which will assist him in protecting himself from disease and infection.
3. To provide immunization for all against smallpox, diphtheria, whooping cough and tetanus, with additional immunizations for specially exposed groups.
4. To develop motor skills and efficiency to the highest level possible for the individual.
5. To free all individuals from the handicap of remediable defects and weaknesses.
6. To assist all individuals in accepting and making the best possible adjustment to their irremediable defects and weaknesses.

DR. RUTH E. BOYNTON presented a paper on "The Evaluation of Fitness." Consideration was given to what fitness is and for different kinds of activities. Capacities of each individual must be measured and it must be shown what jobs he can do.

There was a review of tests and methods of evaluation for proper adaptation, showing that many individuals can reach a high degree of development and skills.

It is highly important that we understand that it is necessary to evaluate the total man, not just one system or organ.

Examples of rating scales were given with discussions.

A great part of the work already done by Bert Hanman was paraphrased in the remaining portion of this presentation.

DR. C. C. BURLINGAME completed the symposium on fitness for work and also the sessions of the Seventh Annual Congress on Industrial Health, discussing the subject "Positive Mental Health."

From repeated experiences in industry, it has been estimated that the psychosomatic aspects of foremen constitute what has been commonly expressed as a "pain in the neck."

The history of psychiatry was outlined, especially with reference to its industrial application, in which the essayist was one of the early pioneers, being occupied in this type of endeavor first in the year 1915, when policies on physical examinations in industry were determined.

It is to be borne in mind that the source of such expressions as "no intestinal fortitude"—"my heart is in my mouth"—means a somatic disturbance of psychic origin.

When conflicts occur among industrial employees to such an extent that they produce difficulties, the individual does one of three things: (1) he quits work; (2) he "blows off;" or (3) he gets sick. As a consequence of any one of these things, the interest level will go down tremendously.

An important principle is that the foremen must be teachers of health, in which there must be cooperation of management and medicine. Anything else will fail as an important avenue to better conditions of personality association in industrial problems.

A study of personality types promises much and we can look forward to making a great deal of progress along this line. It is to be emphasized that personality problems are not restricted to any one group of persons—all ranks and types furnish examples of such problems.

Finally, it is always to be kept in mind that we cannot separate the functioning of the mind from the functioning of the body.

Industrial Medicine
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Observations on Progress

—A Tardy Program—

TWO years ago, in January, 1945, in this space, the editorial offered a program for the year, suggesting, with reasons:

1. That standards of industrial medical practice be developed and promulgated by industrial physicians and surgeons for medical and health services in large and small industries.

2. That an agency be established by industrial physicians and surgeons to act as liaison between industrial medicine and industrial management for the interpretation and application of scientific knowledge to common problems.

3. That standards be set up for courses in industrial health for recognized medical schools—prepared and sponsored by industrial physicians and surgeons.

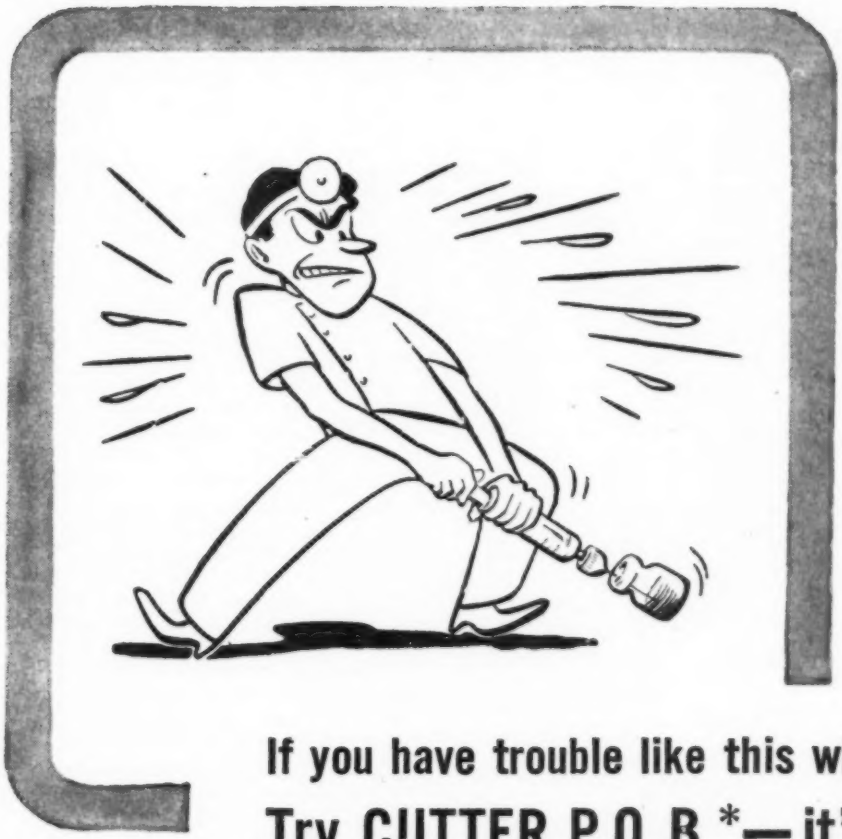
4. That industrial medical departments, in whatever size and however constituted, be recognized as a *professional* corollary of management, and responsible only to *top* management, with remuneration on a professional instead of an employee basis.

EXCEPTING in relation to No. 3, little has been done in any of these respects. Possibly the reconversion, not only from conditions of war to those of peace but also from a psychology of war to a psychology of peace, had much to do with the apparent inertia. At any rate, it wasn't until the latter part of 1946 that the times were marked by more than an academic and purely casual interest in these needs of industrial medicine. Toward the end of the year several things of constructive significance became evident. One was the openly expressed conversion of certain men of prominence in various activities closely related to the field. Long steeped in the conviction that anyone who had become an M.D. was *ipso facto* qualified to fill any position in industrial medicine, their frank admission that this form of practice requires a different point of view and embraces a different philosophy was heartening, indeed. It means the removal of a principal stumbling block in the path of medical school education in industrial medicine.

ANOTHER, and perhaps the most important, event of the two-year period was the publication by the American College of Surgeons of its 1946 edition of "Medical Service in Industry and Workmen's Compensation Laws." This is a veritable manual of practice. Its findings, recommendations, policies, procedures, statistics, plans, suggestions, and ideas are so well set forth as to make its 100 attractive pages a mine of information for all who want to know *what* to do, and a rule book of standards for those concerned with *how* to do it. Short of the employment—by the A.A.I.P. & S. or the A.M.A. Council on Industrial Health—of a liaison officer between industrial medicine and industrial management, this A.C.S. Bulletin will serve very effectively in that capacity. It should be in the possession of every physician and every industry, large and small. And it could be if some such organization as N.A.M. were to assure its distribution. Meanwhile it may be obtained from American College of Surgeons, 40 East Erie Street, Chicago 11, Illinois, at 50 cents per copy.

WITH all of the recent New-Deal-inspired agitation for the socialization of medicine, it is not surprising that a new note has been sounded in certain respects of industrial health activities—the note of propaganda, detectable in the publications of several governmental agencies. This may be merely a sort of "trial-balloon," anticipatory of requests for larger appropriations from an economy-minded Congress, but it savors strongly of the desire, if more power cannot be acquired in one way, to acquire it in another. There is no need to particularize in respect of these publications—"he who runs may read."

REGARDING the recognition of industrial medicine by industry in general, the flurry of search for physicians at clerks' salaries seems a little abated. But one of the principal underlying causes of the flurry—a cause for which the industries are not to blame—is as potent as ever. That is the attitude of the large proportion of private practitioners toward prevention—the attitude that if too much is prevented there will be too little to cure. The preventive philosophy which is of the most value to industry, being scorned by the only physicians with whom there is local contact, has no chance to prove itself to those it will benefit the most, and thus no chance to command a remuneration consistent with its worth. The whole relation remains on the basis of cure, with the salary gauged by the amount of curing to be done. The removal of this cause *in toto* may impose upon some M.D.'s the necessity of finding another way to make a living, and for this reason the education, in the real significance of industrial medicine, of the successors to these M.D.'s—the young men now in medical schools—can't begin too soon, nor be too earnestly furthered. Meanwhile, in spite of opinion to the contrary, the appearance of a good preventive program in a community has always made more work for that community's private practitioners.



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A Modern Concept of Industrial Hygiene

THE basic function of industrial hygiene is to make workers healthy and keep them so. On this there is universal agreement. And yet, is the orientation of most of us such as to simplify our task? Is our approach to the problem the most fruitful one? It has been suggested that an evaluation of our efforts may be helpful.

Historically, industrial hygiene grew up in response to the problems of the prevention and treatment of the most dramatic of workers' disabilities—occupational injuries and diseases. It was only natural that this should have been its origin; and that it should have been in part identified, in the beginning, with official agencies charged with improving the welfare of workers. During the years, a formidable body of knowledge has been accumulated in traumatic surgery, industrial toxicology, mental hygiene, dentistry, nursing, engineering, morbidity statistics and related fields. A corps of specialists has been trained to apply and to add to this new knowledge. These experts have made, and are making a vital contribution to workers' health. They must be encouraged, and their opportunities expanded, in proportion to the greatly accelerated technological advance of our industries. But is there more that can be done?

Through studies on disability and absenteeism, it has been demonstrated that about 90% of workers' disability is nonoccupational in origin. For every day lost due to industrial diseases and accidents, 15 are lost as a result of ordinary adult illnesses. These lost days have quantitatively much more of an adverse effect on our economy than those in the first category. Is the problem of keeping workers healthy being attacked on all fronts when emphasis is laid on promoting in-plant medical services for the control of occupational disability? Has the role of general medical care as an instrument of preventive medicine been appreciated fully?

One of the barriers to adequate medical care for the worker is his lack of knowledge in matters of health. We in industrial hygiene attempt to solve this problem by encouraging such activities as health education, nutrition programs and periodic physical examinations. When an illness or defect is discovered, the worker is usually referred to his private physician. We also encourage the plant medical service to give workers advice on nonoccupational illnesses—short of actually treating them, save for minor conditions and emergencies. These preventive measures have accomplished a great deal in improved health of workers. The problem is of such magnitude, however, that the surface has hardly been scratched.

The fundamental barrier to adequate medical care is an economic one. The average wage earner cannot afford the best modern medical care—at least not when he has to pay for it on an individual basis. Several well-known studies on the costs of medical care, some by the United States Public Health Service, have demonstrated this fact.

Certain far-seeing industrialists have known this for years. Some have encouraged mutual sick benefit associations, operating on the insurance principle, to help protect their workers against loss of wages during illness (indemnification plans). Others have established direct service organizations like the Endicott-Johnson Workers Medical and Relief Department, or, more recently, the Permanente Foundation Health Plan for workers in West Coast shipyards.

Organized labor also knows the relationship between medical care and the ability to pay for it; and has shown an increasing awareness in the past few years. Working on the premise that the worker's health is his only capital, unions have felt that the promotion of prepayment plans for spreading the risk of medical care costs is their legitimate function. They started out with plans which were financed entirely by union members, through dues or special assessments. Recently, however, the trend has been to make employer participation a demand in collective bargaining.

Hundreds of contracts have been negotiated on this basis during the last few years. Many of these plans operate through commercial insurance companies by indemnifying workers for various types of sickness and medical care costs. Many others purchase hospitalization benefits through the Blue Cross, which is a modified

Industrial Hygiene Newsletter, December, 1946.

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type of service organization. An exception is the Labor Health Institute of the St. Louis Joint Council, United Retail, Wholesale and Department Store Employees, CIO. This is a comprehensive plan for medical care, including physicians' services in the home and health center. It is financed entirely by management (which contributes 3½% of the pay roll) and administered by a board of trustees on which both management and labor are represented.

Official agencies, too, have been active for some years in sponsoring proposals to help people budget the costs of medical care. It is quite clear, however, that organized labor and many industrialists are not waiting for official action. They are moving ahead with their own health insurance programs. If we in industrial hygiene intend to attack the problem of industrial disability at its core, it is imperative that we at least familiarize ourselves with this movement.

Personnel Practices in Fifteen Countries

DEAR CHARLIE"—letters of comment on personnel practices in 15 countries—is written by BERT HANMAN, of Berkeley, California, personnel researcher, who is being sponsored by the Rheem Manufacturing Company to prepare a book on "The Worker and His Job" for the general good of industry, government and labor. These letters, of which this is the third, will appear each month for six months in INDUSTRIAL MEDICINE, *National Safety News* and *Personnel Digest* in America as well as in several European journals.

Copenhagen,
November 30, 1946

DEAR CHARLIE: Ah, Scandinavia! A beautiful and wonderful land where democracy is meaningful and where few have too much, fewer have too little and most have enough!

In Norway, Sweden and Denmark, I have spent the month of November, completing about 50 interviews with those concerned with the various problems of personnel work. The chief topic of conversation has been the proposed "International Conference on The Worker and His Job" (please refer to this subject in my last letter from London). Here, as in Great Britain, there has been deep and genuine interest in this plan, and here too there has been a safe landing strip provided to bring this idea out of the clouds and down to earth.

Meetings have been held in these three Scandinavian countries and the plan for this Conference has received unanimous endorsement in principle. A five-man committee (as in Great Britain) has been elected to function for these three countries as *one* unit. I would like you to know the members of this committee and the gentlemen who chose them. The names of the five committee members are italicized.

SWEDEN: Professor E. Hohwii Christensen, The Royal Swedish Gymnastic College and Physiological Institute.

Tage Erlander, His Excellency, The Prime Minister.

Dr. Valdemar Fellenius, Director, Institute of Applied Psychology, Stockholm University.

Professor Sven Forssman, The Royal Swedish Institute for Public Health (*Chosen Committee Member*).

Professor Sten Friberg, The Royal Karolinian Institute for Disabled.

Charles Hedquist, Secretary of The Swedish Blind Association.

Hilding Kjellman, Lord-Lieutenant of Uppsala County, Chairman of The Royal Swedish Committee for Disabled.

Professor Robert Kristenson, Professor of Industrial Management, The Royal Technical High School (College) (*Chosen Committee Member*).

Hans Linderoth, Industrial Research Institute.

Folke Lindgren, Director, Swedish Standards Association.

Professor Gerhard Rundberg, Surgeon Generals Office.

Bertil Eketrop, Secretary in the Ministry of Commerce and Trade.

Nils Strom, Principal Secretary,

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R. Sunden (Chairman), Deputy Director, Swedish Industrial Association.

Professor Ingvar Svennilson, Industrial Research Institute.

Gunnar Westerlund, Director, Department of Psychology, Federation of Swedish Industries.

Dr. Herbert Westermark, Surgeon General, Royal Swedish Navy.

Gustaf Witting, Secretary in The Royal Swedish Committee for Disabled (*Chosen Swedish Secretary*).

(Representatives from the Labor Unions and Employment Service were unable to attend).

NORWAY: Dr. Arne Bruusgaard, Chief, Medical Division, Norwegian Factory Inspectorate.

Dr. Karl Evang, Director of Public Health.

Kaare Heiberg, Director, Norwegian Standards Association.

Rolf Waaler, Director, Education in Industry (*Chosen Norwegian Secretary*).

DENMARK: Poul Bahnsen, Director, Institute of Applied Psychology (*Chosen Danish Secretary*).

Thorkil Christensen, Minister of Finance.

Dr. Johannes Frandzen, Director, National Health Service.

Mogens Host, Secretary, Danish Committee on Scientific Management.

Ola Weincke, Secretary, Danish Standards Association.

With five-man committees now organized for both Great Britain and Scandinavia, the next step will be to form such a committee in France and then in the United States and thus establish the framework on which to build the "International Conference on The Worker and His Job." For the *first* Conference in America, perhaps it would be better to start conservatively with full 25-man delegations from each of these *four* Countries *only*, making a total of about 100 *regular* delegates. In addition, however, three or four *observer* delegates would be invited from about 20 countries, such as Russia, Finland, Germany, Holland, Belgium, Switzerland, Italy, Spain, South Africa, New Zealand, Australia, Argentina, Brazil, Chile, Mexico, Canada, etc., making a total of about 75 observer delegates. Besides the *regular* and *observer* delegates (175), there would be a large American audience invited, 1,000 or more professional people interested in the work of this Conference.

The Divisions and Sections of the Conference are beginning to take clearer form. Further discussion, clarification and definition, of course, is necessary. The following tentative outline, however, is suggestive of the scope of the Conference.

Proposed International Conference on The Worker and His Job: Tentative Divisions and Sections.

A—Medicine:

1. Industrial Medicine and Nursing.
2. Industrial Hygiene and Toxicology.
3. Physical Restoration and Rehabilitation.
4. Mental Restoration and Rehabilitation.
5. Public Health.
6. Education in Medicine.

B—Psychology:

7. Industrial Management.
8. Development and Use of Occupational Information.
9. Training and Supervision.
10. Group Psychology and Teamwork.
11. Social Psychology.
12. Education in Psychology.

C—Engineering:

13. Human Factors in Design and Use of Work Places.
14. Human Factors in Design and Use of Machines, Tools and Equipment.
15. Human Factors in Design and Use of Houses.
16. Human Factors in Design and Use of Products.
17. Safety Engineering.
18. Education in Engineering.

D—General:

19. Capital (owner management as differentiated from technical management).
20. Labor.
21. Government (social services).
22. Industrial Economics.
23. Education in General.
24. Miscellaneous.

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"The therapy of a majority of the cases of contact dermatitis encountered in industry", according to the noted dermatologist, Dr. Frank C. Combes[1], "requires no further medication than the intelligent use of a *good buffer solution such as Liquor Aluminum Acetate (Burow's solution)* . . . and a *good crude coal-tar paste.*"

His preference for wet dressings solution is **Domeboro Tabs** ("widely used in industry", particularly by Parkes[2] at Curtiss Wright for cutting-oil dermatitis)—because it is "a convenient tablet which, when dissolved in water, releases a *lead-free aluminum acetate in appropriate dilution,*" with a substantial percentage of boric acid.

The *crude coal-tar paste* used at New York University, according to Combes, "is manufactured commercially under the name **Daxalan**"—which has been found *superior to distillates, filtrates and pastes containing liquor picis carbonis.*

It must be properly applied for "optimum benefit", and Combes advises thinning with **Domolene** for spreading over a large area—because in his judgment its hydrophilic ointment base "does not materially lessen the therapeutic efficacy of the paste."

With tissue repair under way, and only erythema remaining, the use of **Domeboro Ointment** (each ounce of which, in a special hydrophilic base, possesses the therapeutic action of one Domeboro Tab diluted in a pint of water), permits a quicker return to work, while healing is promoted by its efficient topical action.

(1) Combes, F. C.: Indus. Med., July, 1944.
(2) Parkes, Morey: Indus. Med., January, 1944.

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At the first Conference, Great Britain, Scandinavia, France and the United States *each* would have *one regular* delegate in *each* of the 24 *Sections.* The three or four *observer* delegates invited from *each* of some 20 countries would represent interest in the four *Divisions* of the *Conference* with no *two observer* delegates from *one* country being connected with the *same* Division. (Of course, as many professionally qualified people as wished could attend the Conference from any part of the world, but, as explained later, the expenses of all *regular* and *observer* delegates would be paid and hence the need for limiting *observer* delegates and for channeling their interests.) In the future as the Conference develops, full delegations from several additional countries may be included as well as the number of Divisions and Sections expanded.

The first Conference should be English speaking and should be held somewhere in the Eastern part of the United States in order to facilitate the attendance of the largest possible American professional audience. It should be held in April or May before the hot weather starts, since many of the European delegates would not possess summer clothing. This means that the Spring of 1948 would be the correct time for the first Conference. It would take a full two weeks (a full month for each European, allowing for transportation time). During the first week of the Conference, the 24 Sections would meet separately (several Sections meeting each day) with papers being given by each of the four *regular* delegates in each Section and with discussion by the *observer* delegates and professional audience. Upon the completion of each Section Meeting, the four *regular* delegates would decide among themselves as to which *one* of them should represent their Section at the *joint session of all Sections* during the second week of the Conference and would get together to prepare a composite paper on their subject for the joint session. During the second week *everyone* would meet together and hear and discuss the one composite paper given on each of the 24 subjects. In such a manner, not only would a deeper interest in specialized subjects be stimulated but also an exposure to the many problems of "The Worker and His Job" would result in an amalgamation of ideas and hasten cooperative effort and teamwork, locally, nationally and internationally.

Not being able to discuss this plan with you face to face, I am wondering if it is clear that this proposed Conference would *not* be a competitive organization with any existing organization. To be sure, there are *many* existing organizations—medical men, engineers, psychologists and others each have their national and international organizations and do get together in their *specialized* congresses. But where do they *all* come together to discuss both their specialties and the *whole* problem? No place, yet! The International Congress on Scientific Management, for instance, does not take up medical and engineering problems. Medical congresses are strictly medical and engineering congresses are strictly engineering. *And this is exactly as it should be,* except that there should be even bigger and better specialized congresses. The proposed Conference would do everything in its power to create greater development within specialized fields, but, at the same time, it would bring the best brains of the world together once every two years to discuss *all* specialties *and* the whole problem; half the delegates would be new men each time and thus the educational nature of the Conference would be far reaching for both the delegates and the audience; and the published proceedings would serve as an educational force throughout the world. No, there is not one spark of desire to organize a competitive organization. The exact opposite is true: to *deepen* the interests of specialists, to *broaden* the perspectives of specialists, and to *develop cooperative effort* among specialists through an understanding of each others' problems—to create a technical and scientific organization, democratically operated as possible, which will bring the best existing brains together in order to develop greater brains to deal with the problems of "The Worker and His Job."

And I guess, Charlie, that you are wondering (as I am this moment) just where the money is to come from to bring this Conference to life. Frankly, I don't know. But there are certain things I do know. First, this is the atomic age and thus, in its infancy, a fearful age; that in this period the value of money is quite relative; that one of the best investments during this period is in *brains.*

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Second, that this *idea* for the proposed Conference is a *powerful* one; that the idea itself will be granted the respect and consideration of industry; that industry can *not* afford *not* to invest in the idea. Whether the investment in the development of such brains would be used by the political powers in another war cannot be predicted—use in a peaceful world, of course, is the hope. But, paradoxically, in either case the greater brains are useful—for "better" wars or for *better* peace!

It is estimated that the total cost of the first Conference in the United States would be a little less than $500,000. The major part of this sum would go to pay the traveling and living expenses of the 100 regular and 75 observer delegates. This payment is necessary for two important reasons; first, most Europeans are allowed to take but very little money out of their respective countries; and second, many of the men who should be delegates (professors and the like)

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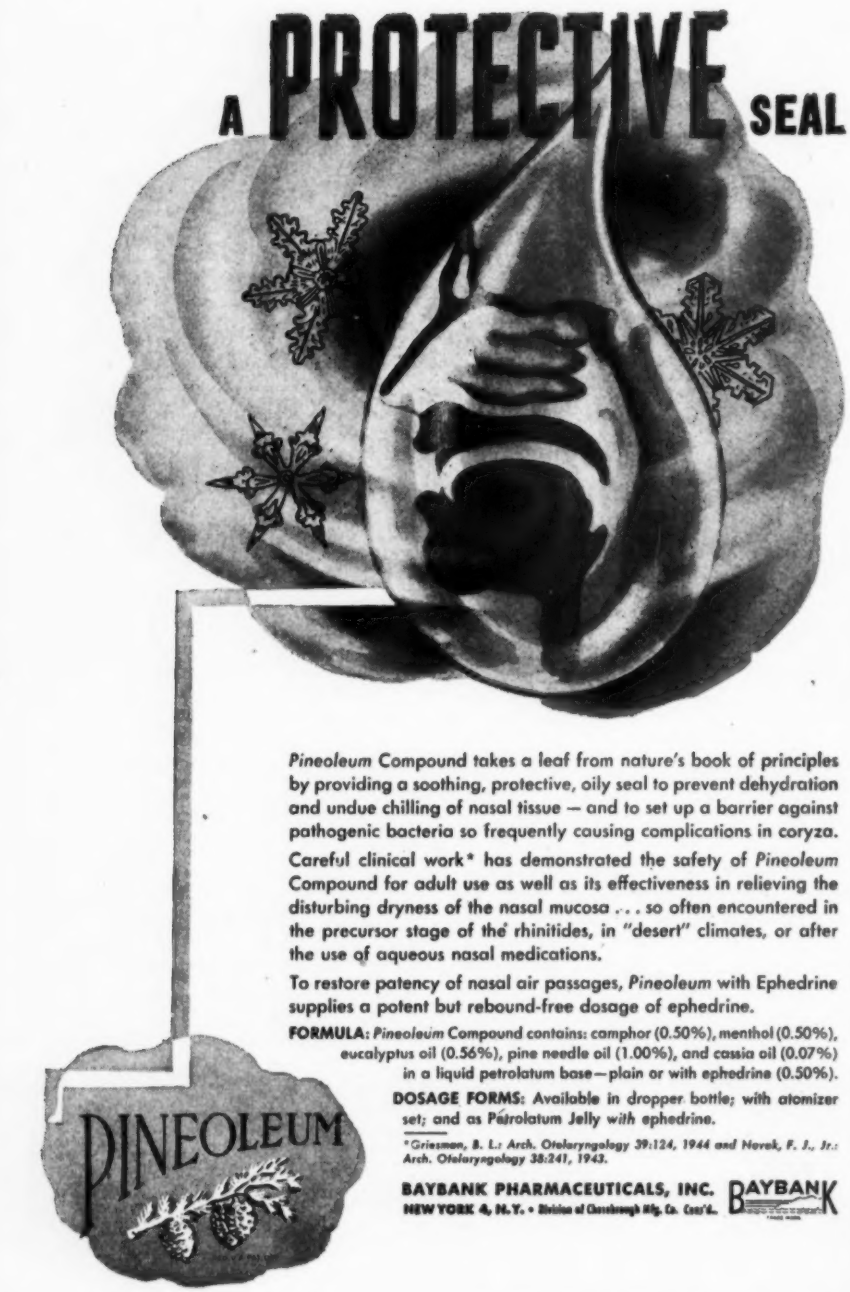

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DOSAGE FORMS: Available in dropper bottle; with atomizer set; and as Petrolatum Jelly with ephedrine.

*Griessman, B. L.: Arch. Otolaryngology 39:124, 1944 and Novak, F. J., Jr.: Arch. Otolaryngology 38:241, 1943.

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could not finance their own trips. Initially, however, at least $1,000,000 should be obtained in the United States—about one-half this amount to be used for the first Conference and the remaining half to maintain an international headquarters office and to assist other countries in holding future Conferences and thus assure the life of the organization for a decade. When one considers the far-reaching advantages and value of this plan, certainly the costs are not prohibitive. The *second* Conference, now believed possible to be sponsored by Great Britain in 1950, would cost less than two-thirds as much as in the United States since the travel costs of the delegates would be greatly reduced. Now, more than ever before, when greater national and international teamwork is mandatory in order to construct the future, are we in need of such an organization.

As a personal matter, Charlie, there is one thing about this plan that I wish to make clear to you—please do not get the notion that I am trying to help create an organization in order to create a job for myself—no, sir! For a moment now and then I think how easy it would have been had I just gone my own fortunate way and only gathered material for my forthcoming book on "The Worker and His Job." But, as I said, this *idea* is a powerful one and I am now "consumed and compelled" by it to do what I can to help make it become a reality.

In connection with my forthcoming book, I would like to announce that introductions to the chapters on Norway, Sweden and Denmark will be prepared by Rolf Waaler, Industrial Psychologist (Norway), Professor Gerhard Rundberg, Industrial Hygienist (Sweden), and Poul Bahnsen, Industrial Psychologist (Denmark). You may remember that Dr. Richard Schilling (Industrial Medicine), is to introduce the chapter on Great Britain and Dr. Henry Kessler (Physical Restoration and Rehabilitation) to introduce the chapter on United States.

More immediately successful in Scandinavia than in England, I was able to help start the machinery at this end to bring about an exchange of editors and articles between the *Scandinavian Journal of Industrial Medicine* and our two Journals, INDUSTRIAL MEDICINE and *Occupational Medicine*. The *Scandinavian Journal* is published monthly in Stockholm for Norway, Sweden and Denmark, and covers industrial medicine, hygiene and public health. While this Journal is comparatively small, its standards are high and its brilliant young editor, Professor Sven Forssman, a credit to the profession of medicine. He has obtained the approval of his editorial board and is writing to Drs. C. O. Sappington and W. A. Sawyer, respective editors of the two American Journals, to complete the details for exchanging associate editorships and for reprinting articles of mutual interest from each others' Journals each month. This type of international cooperation is progressive. (Please note, England!)

And Charlie, you may be interested to hear also that "Dear Charlie" is being translated for publication in a Scandinavian Industrial Journal as well as being considered for publication in Great Britain.

By the time you read this letter in published form, I suppose Christmas will have passed. But won't you please turn back the calendar and receive my best wishes for a happy Holiday Season! After Holland and Belgium, I am looking forward to spending the holidays in Switzerland and from Geneva I shall write to you again. Until then, dear Charlie—ADJØ!

—BERT HANMAN

NEWS, COMMENT, OPINION

The American Revolution

I BELIEVE that many Americans are not aware of the extent to which our painless, bloodless, virtually unnoticed but deadly revolution has been completed. I cannot believe that the average American citizen would so complacently permit such a revolution to take place, unless it were accomplished under the most deceptive circumstances."

—Charles M. Barbe, quoted in *Weekly Bulletin of the Jackson County (Missouri) Medical Society*, December 7, 1946.

Something for Nothing

THE knowledge that in England the claim rate for wage loss benefits increased 50% in six years gives one pause for thought. Too, in Germany, where Bismarck, interestingly enough, first promulgated the doctrine of security for the masses, this rate trebled between 1885 and 1930. One may well ask how deeply ingrained is man's desire to get something for nothing.

—From an editorial in *J. Florida M.A.*, December, 1946.

Stay Home

COLD sufferers themselves can do a great deal to keep the disease from spreading by staying at home during the early stages and wearing a surgical mask. Many industrial doctors would like to make it standard practice that employees with colds must stay away from their jobs for a minimum of three or four days. No one can catch cold unless the virus is present. Colds were rare among the Eskimos until viruses were brought in by traders. A combination of common sense in the handling of patients with air-sterilization would do more to vanquish colds than all the drugs in the pharmacopoeia.

—From "Colds," by FRANCIS SILL WICKWIRE, in *Life Magazine*, December 16, 1946.

Allergic to Money

THAT health hazards can be found in any type of industry was the conclusion reached by AUGUST T. ROSSANO, JR., industrial hygiene consultant for USPHS districts five and eight, on a recent trip to Nevada. The chairman of the Industrial Commission discussed with MR. ROSSANO a claim for a most unusual occupational disability. The claimant, a "dealer" at a dice table in a Reno gambling casino, was suffering from a weeping dermatitis with secondary infection. According to the report of the attending physician, "the patient constantly came in contact with the green felt of the dice table. The green dye rubbed off on his fingers, creating an allergic dermatitis which became secondarily infected with Staphylococcus aureus —possibly from handling of money." In relation to present type of employment, the disability is considered permanent. The physician has ordered his patien to refrain from all contact with silver. If carried out, this order would work a tremendous hardship, since in Reno greenbacks are as scarce as the proverbial "hen's teeth" and gold money is still withheld from use. Of course, the gentleman might elect to go through life wearing appropriate protective gloves.

—*Industrial Hygiene Newsletter*, January, 1947.

Little Interest in Prevention

IN COAL communities that I have visited I have inquired into the participation in public health work by the company doctor and other private practitioners and, I must say, I have been very disappointed to learn that except for school health programs of immunization, physicians have evidenced very little interest in public health and preventive medicine. These same doctors, as residents of communities in which they practice, have not even, as a rule, undertaken their responsibilities as enlightened citizens and, shutting their eyes to the apparent stream pollution and closing their ears to the crying need for hygiene education of their fellow citizens, have withdrawn themselves into their work and their private lives.

—REAR ADM. JOEL T. BOONE, quoted in *Chicago Tribune*.

Industrial Cancer Clinic

INDUSTRIAL hygienists are watching operation of the nation's first industrial cancer clinic at the Avondale Mills, Sylacauga, Alabama. Mill

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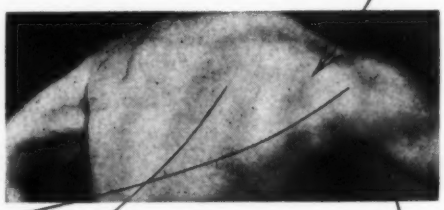

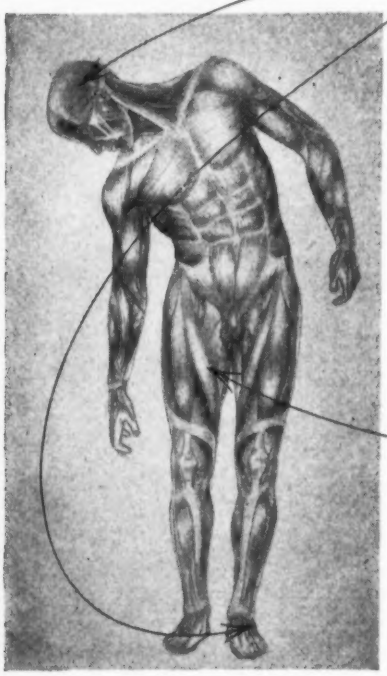

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workers, chiefly women, and members of their families voluntarily submit to semi-annual examinations at the clinic, which is financed by HUGH COMER, executive vice-president of the company. The project, started at the request of the American Cancer Society, has already saved the lives of several women in whom cancer was detected in an early stage and its development arrested.

—From *Modern Industry.*

Essential Service

ALL industrial plants, which are directed by alert management, have in recent years taken cognizance of the fact that as material facilities are increased and the number of personnel augmented, there must be a corresponding increase in both the quality and quantity of services made available to the employees. This has been the experience of the Armstrong Tire & Rubber Company plant in Natchez, Mississippi. One of the most essential of all services is medical care. Any plant can function more efficiently if the employees receive the services of a medical unit. As this company expanded from its 75 original workers to its present 1,150, the management provided improved medical services. The present medical department consists of three spacious rooms, a 20- by 10-foot waiting room, 16- by 12-foot first-aid room, and a 20- by 20-foot examination and ward room. Graduate nurses are on duty day and night, and the company physician is always available in emergencies.

—*Industrial Hygiene Newsletter*, January, 1947.

Union Expert in the Plant

THE new agreement on health hazards in the Ford Local 600 contract provides that disputes arising out of health hazards are now a subject of collective bargaining between the company and the union; also, that the issues of health hazards may be presented to the Umpire upon mutual agreement of the parties. Under the new agreement, Article V, Section 3 of the contract between the UAW-CIO and the company now includes the right of the union, after proper notification to the National Ford Department in writing, to negotiate such disputes for a period of 15 days. If not satisfactorily settled within the 15-day period, the dispute may (1) be mutually referred directly to the Umpire, or (2) strike action may be taken after legal and UAW Constitutional procedure has been followed. During the 15-day period of negotiation, the Union under this agreement, is now allowed to bring an expert into the plant on any phase of health hazards disputes that may develop. The Health Institute is more than pleased that Local 600 was successful in negotiating the above agreement with Management. We believe it to be a big step forward and one which all of our Local Unions should endeavor to follow. The Health Institute will continue to be available for consultation on all matters of health and safety at any time—day or night. This mutual management and labor gain is in line with a recent article in the *Journal of the American Medical Association* stating that doctors are sympathetic toward the unions' request for health and welfare plans in collective bargaining agreements. The American Medical Association also favors union participation in the administration of funds for medical and hospital care and for general welfare. We have only to look back a few years to see the advancements made in industrial relations.

—*The Stethoscope*, published by UAW-CIO Health Institute, Detroit, December, 1946.

Benadryl

TWO Rochester, New York, physicians warn that benadryl, a very effective drug for allergic skin diseases, is dangerous to persons operating any kind of machine, especially an automobile, because it may produce drowsiness, according to an article in the September 28 issue of *J.A.M.A.* BENJAMIN J. SLATER, Associate Medical Director, Eastman Kodak Company, and NATHAN FRANCIS, of the Medical Department of the Eastman Kodak Company, in Rochester, state that "because of this narcotic side reaction incident to the taking of benadryl, the drug may be a serious hazard when used by persons operating automobiles or in industry operating moving equipment or machinery." In their series of 65 cases, the authors point out that drowsiness was a common symptom in 25. "This figure should be increased somewhat," they say, "as many of our patients were instructed to take the

drug only at bedtime. Invariably they reported that they slept better than usual. Drowsiness may occur from one to three hours after taking benadryl, and this drowsiness may be cumulative if the drug is continued." A case report of one of their patients serves to illustrate how dangerous the effect of the drug may prove. A 20-year-old man was given a 50 milligram capsule of this drug to relieve severe symptoms of hay fever. The second day of treatment he took the capsule just before going to work. He complained of feeling drowsy. An hour later, while driving an electric platform cargo truck, he lost control of the truck and it fell off the platform. Fortunately, he jumped in time to avoid injury.

—*J. Indiana State M.A.*, December, 1946.

Blocking Histamine

NEW anti-allergy drugs are opening a field of chemotherapy which may become as important to the pharmaceutical industry as that opened by the sulfa drugs. With at least 15% of the population suffering from some form of allergy, including perhaps 10,000,000 hay-fever victims, the need for such drugs is clear. Although the new drugs are by no means completely effective, they have proved valuable enough in clinical testing and in the experience of users to evoke a prompt and enthusiastic response from both layman and physician. Sales at the present time seem limited only by the ability of industry to produce, and future applications other than the direct relief of allergic symptoms are probable. The two most prominent anti-allergy drugs are Benadryl, product of Parke, Davis & Co., and Pyribenzamine, product of Ciba Pharmaceutical Co. Both are complex organic chemicals, the latter apparently being derived from earlier French work which showed that related compounds had marked ability to block the effects of histamine. Histamine is a natural derivative of one of the amino acids which make up the body's proteins, and is believed to be responsible for the typical swelling and blisters accompanying many skin rashes, the inflammation of eyes and nasal mucosa, and the changes in blood pressure associated with allergic reactions. Normally found in small amounts in all of the body tissues, its concentration in the blood of patients with severe attacks of allergy may be five or more times normal. It has long been suspected of being involved in inflammatory reactions generally, having been found in high concentration in the fluid of blisters and in burned or inflamed tissue. Although it occurs in considerable amounts in the gastro-intestinal tract and is believed to be a natural stimulant of gastric secretion, as well as a possible stimulant of other secretions and functions, its essential significance in the body is not clearly known. Histamine has a profound effect on capillary blood vessels, causing dilation and increase of their permeability and producing a condition similar to inflammation from other causes. Applied to the skin, it produces reddening and temporary swelling, simulating the typical skin reaction attributed to allergy. The term "allergy" is generally understood to include any abnormal degree or kind of reaction to substances in contact with the body surfaces. It may be caused by almost any substance; animal and vegetable products are the common offenders, but completely new drugs, chemicals, and plastics may also be the cause. A logical explanatory theory is based on evidence that tissues can be sensitized to particular substances by repeated or continuous exposure. Once sensitized, the body reacts to produce antibodies which are specific against the foreign substance; these antibodies are marshaled at the point of exposure and their reaction with the foreign substance results in the why histamine is produced remains release of histamine. Just how or controversial. If all types of allergy are considered, the new drugs give 60 to 70% of the patients relief from nasal swelling and other local reactions such as skin rash for four to six hours. The widespread belief that histamine may be involved in many types of abnormal sensitivity suggests broader fields of use for the new drugs than simply relieving hay fever. For instance, patients often become sensitized to the sulfa drugs, as well as to penicillin and streptomycin. It is a general rule not to administer the drug again once the patient has shown any reaction, to it, but the anti-histamine drugs may make repeated use possible in such cases. This is particularly true

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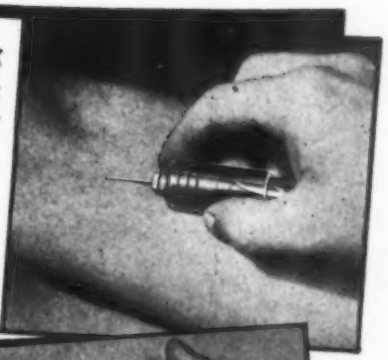

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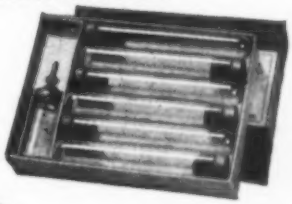

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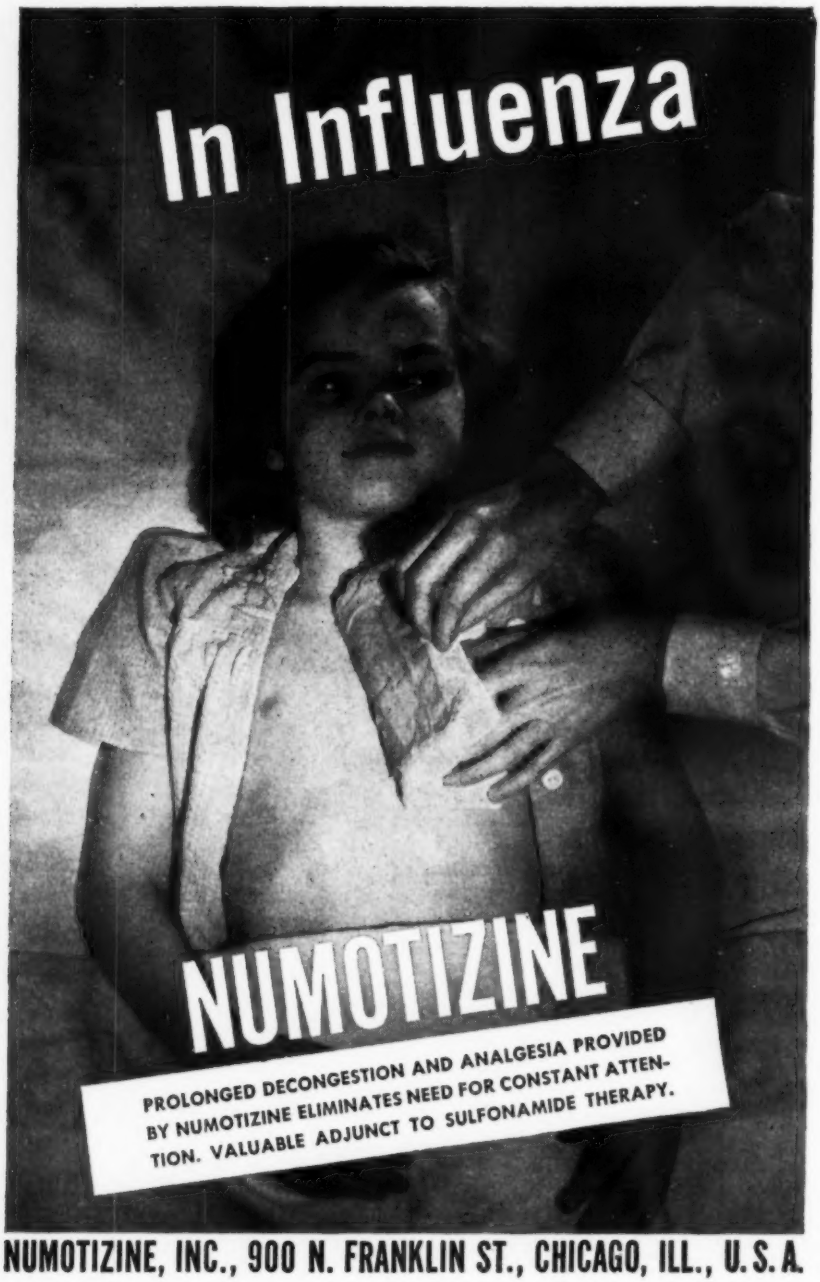
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with streptomycin, where side reactions may occur in 20 to 60% of the patients treated with it, depending on the dosage used. These drugs may also prevent the shock reaction following injection of a serum to which the patient has previously acquired sensitivity. Such use might be adopted as routine, since a doctor can never be certain that a patient has not had a previous injection. The common method for treating allergic disease has been to desensitize the patient through increasing doses of the allergen, once this has been identified by appropriate tests. The anti-histamine drugs should give the doctor more time for diagnosis and provide greater comfort and safety to the patient during treatment. Theoretically, the new drugs may speed the treatment by permitting fewer and larger injections. Some individuals have proved sensitive to toxins produced by common infections, which suggests that the anti-histamine drugs may usefully suppress secondary symptoms of some infectious diseases. Although the present anti-histamine drugs are not ideal and experimentalists in universities and pharmaceutical houses are pushing the search for new ones, radical improvements are not expected soon, for Pyribenzamine and Benadryl are virtually unique in their respective classes among drugs examined.

—From *Industrial Bulletin of Arthur D. Little, Inc.*, December, 1946.

The Elderly Individuals

IT WAS our experience that an older man, in general, is capable of doing about 75% the amount of work on a production line which a younger man would be able to do under like circumstances. The capacity to work is definitely limited in the majority of men in the older age groups, their physiological reserve being comparatively small, and if these facts are borne in mind in assigning them to jobs, and too much is not expected of them, many can fit into the industrial picture, especially in the skilled trades. It is our opinion, from a medical standpoint, that there are six factors which should be considered in the assignment of older men to jobs: (1) cardiovascular disease—I mentioned hypertensive conditions and acute heart failure, etc., above; (2) arthritis—particularly where the job might tend to accentuate the quiescent condition of the patient; (3) skin—the skin undergoes senile changes which result in an increased susceptibility to industrial irritants, and these old gentlemen should be kept away from solvents, cutting compounds, and things of that sort; (4) hernia—if present, there may be a tendency to strangulation; (5) alertness—the reaction time is lessened, and these men should not be expected to be able to operate fast-moving machinery, because it is frequently faster than their mental processes; (6) efficiency—in general, an older man will put out less quantity of work, but it will be of a better quality. I have touched upon some observations which we made during the course of the war. I hope that they will be of some interest, and I might say in closing that I am getting along myself, and am reconciled to becoming old gracefully, merely for the privilege of having been young.

—From "Medical Responsibility in Industrial Health," by FRED B. WISHARD, M.D., in *J. Indiana State M.A.*, November, 1946.

Easy, Doctor!

NOT long ago a young woman of reasonable intelligence and moderate circumstances desired an operation for correction of a functional defect. She was exhaustively examined and found suitable for the procedure in question. The fee was then stated. It was $500 in advance. The young woman was staggered by the amount which to her was exorbitant. She was later heard to observe that, if any group tried to take money from the public in that fashion, the public had a right to step in and see that other plans were instituted. As above noted, this young woman was possessed of reasonable intelligence.

—From an editorial in *Northwest Medicine*, December, 1946.

THE following advertisement appears in the December issue of a State nursing journal: "*Industrial Nurse*—Wanted for 3:30 to 12 midnight shift, non-rotating. Large industrial plant in eastern Pennsylvania. Salary $24.50 per week for 40 hours." This was published under the heading: "Opportunities for Nurses," but it isn't an opportunity; it's an insult.

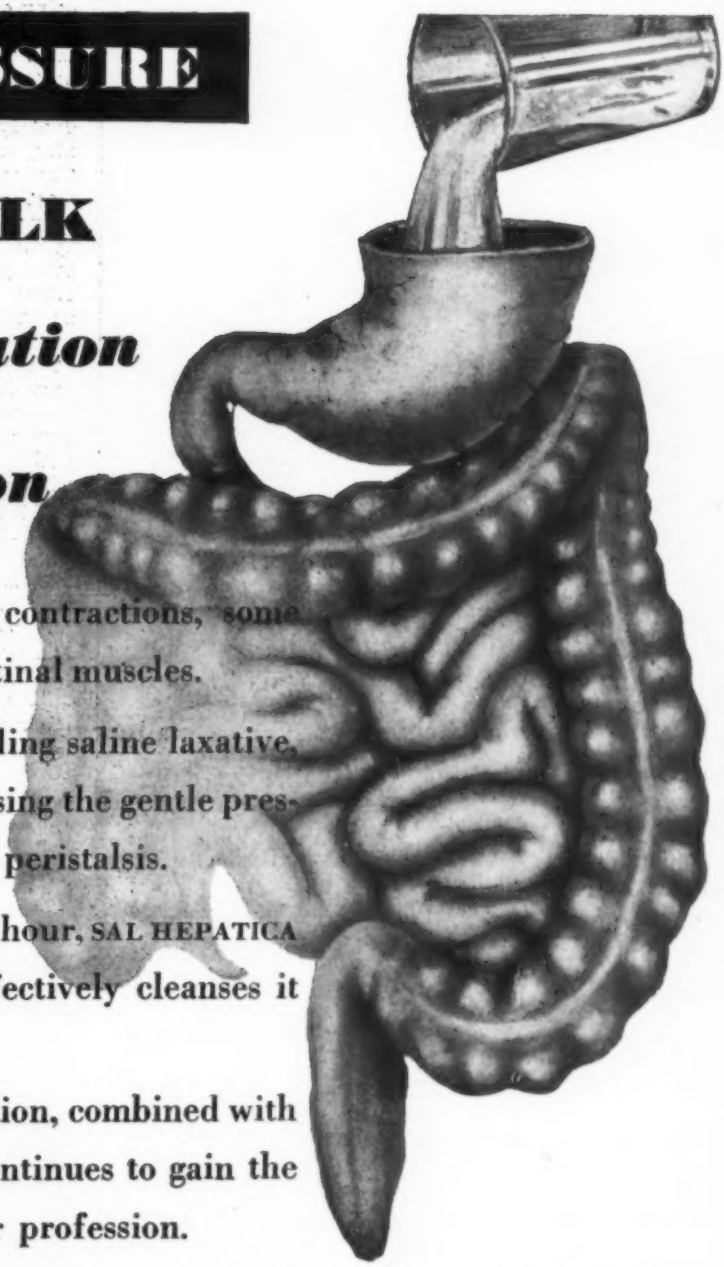
—Editorial in INDUSTRIAL NURSING, January, 1946.

GENTLE PRESSURE

of LIQUID BULK

relieves constipation

without irritation



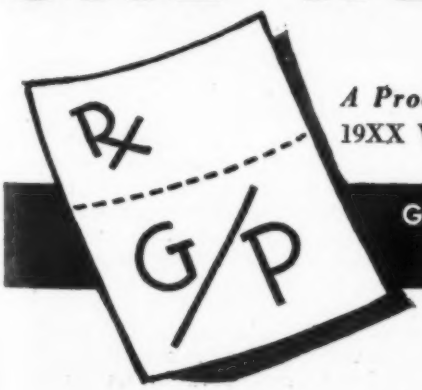
In order to reinforce peristaltic contractions, some laxatives act by irritating the intestinal muscles.

In contrast, SAL HEPATICA, a sparkling saline laxative, follows nature's own methods by using the gentle pressure of "liquid bulk" to stimulate peristalsis.

Acting promptly, usually within an hour, SAL HEPATICA flushes the intestinal tract and effectively cleanses it of waste.

Because of this quick yet gentle action, combined with its pleasant taste, SAL HEPATICA continues to gain the ever-increasing confidence of your profession.

SAL HEPATICA



A Product of BRISTOL-MYERS COMPANY
19XX West 50th Street • New York 20, N. Y.

GENTLE PRESSURE FOR GENTLE YET THOROUGH LAXATION

THE season of throat affections is here.

Thantis Lozenges have proved especially effective in soothing and relieving these conditions. The effectiveness of Thantis Lozenges is due to two active ingredients:

Merodicein* an antiseptic which prevents the development of bacteria even in great dilution

Saligenin† a mild local anesthetic which relieves the discomfort of throat infections.

Thantis Lozenges are antiseptic and anesthetic for the mucous membranes of the throat and mouth. Complete literature on request.

Supplied in vials of twelve lozenges each.

* Merodicein is the H. W. & D. trade name for monohydroxymercuridiiodoresorcinsulfonphthalein-sodium.
† Saligenin is orthohydroxybenzylalcohol, H. W. & D.

Thantis Lozenges

HYNSON, WESTCOTT & DUNNING, Inc. *Baltimore 1, Md.*

—*Continued from page 6.*

eastern mine because one wore a hard hat—this strike being cleared up in 24 hours because all donned soft hats and went back to work, and musing on the quirks of the human mind, which would permit miners to go unprotected, when there is so much criticism of management to the effect that it does not protect its employees, adequately or continuously. . . . AND concerned with the planning and discussion of papers for the Section on Preventive and Industrial Medicine and Public Health at the meeting in June, at Atlantic City, at the 100th anniversary of the A.M.A., with much to do about subjects and speakers. . . . AND enroute to St. Louis where making another plant survey with respect to industrial hygiene conditions and atmospheric contamination, meeting with insurance and management representatives, and later seeing my old friends HENRY DRIEMEYER and ROBERT BRODERICK at their offices; and visiting hospitals and sanitaria with respect to the viewing of films previously taken; and then enroute home with the holiday crowd and many of the youngsters on their way home for Christmas holidays, and noting particularly that there were many girls on board whereof it seemed to Pilgrim that he had never seen so many younger women of such great height; and meeting DR. EDWARD MEITER on the train and engaging in pleasant converse on common problems. . . . AND at luncheon with DRS. CARL PETERSON and WILLIAM P. SHEPARD with much discussion about industrial hygiene and public health affairs, and seeing CAPT. ERNEST BROWN at A.M.A. headquarters, and delighted to know that he is to do a very splendid job with respect to education and industrial toxicology. . . . AND concerned with special examinations and with laboratory work on previously collected specimens, and in between engaging in advisory work with various attorneys on medicolegal problems. . . . AND as the Yule seasons come, thinking many thoughts of those close at hand and of those far away, with the hope that mankind at last can have enduring peace—with, meanwhile, a Happy New Year to all!

LABOR and management representatives of Consolidated Edison Company of New York, Inc., take part in a demonstration initiating a new cooperative blood bank service for Edison employees. H. R. SEARING, executive vice-president, A. AUGUSTUS LOW, vice-president, industrial relations, and DR. J. J. WITTMER, assistant vice-president, watch as PATRICK McGRATH, chairman of Joint Council, Brotherhood of Consolidated Edison Employees, submits to a blood pressure test by ANNABELLE LAHEY, R.N. The new service, arranged with Blood Bank of Queens County, Inc., by the employees' mutual aid society and the company's medical department, provides for a prompt supply of blood for transfusion when needed by an employee or his immediate family.

REG. U. S. PAT. OFF.

Vitules

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IMPROVED FORMULA

VITAMIN CAPSULES

WITH CAROTENE

A FORMULA BASED ON

The Modern "Yardstick" of Nutrition

RECOMMENDED DIETARY ALLOWANCES
NATIONAL RESEARCH COUNCIL

These standards are considerably higher than those believed to represent the minimum daily requirement.

One Capsule Daily

ASSURES AN EXTRA MARGIN OF SAFETY

THE BOX LUNCH often falls short of providing the necessary nutritional requirements of the industrial worker. To assure a full measure of vitamin support, Vitules are recommended as an independent source of optimum quantities of essential vitamins. Supplied: Bottles of 30 and 100.

Vitules—*The Only Multivitamin Capsule Containing Carotene (Provitamin A).*

HIGH POTENCY FORMULA		
VITAMINS	RECOMMENDED	VITULES
Vitamin A	5000 U. S. P. Units	5000 U. S. P. Units*
Vitamin D	400 U. S. P. Units	1000 U. S. P. Units
Ascorbic Acid	75 mg.	75 mg.
Thiamine	1.8 mg.	2.0 mg.
Riboflavin	2.7 mg.	3.0 mg.
Niacin	18 mg.	20 mg.
Pyridoxine (vitamin B_6)	—	2 mg.
Calcium Pantothenate	—	20 mg.

*1000 units from carotene; 4000 units from fish liver oils.

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WYETH INCORPORATED • PHILADELPHIA 3 • PENNSYLVANIA

Relief...complete, prolonged... is the notable effect of this most widely prescribed vasoconstrictor. Three drops in each nostril, t.i.d., will do it—rapidly. Available in liquid or in new, convenient jelly form.

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